

FINAL REPORT

October, 2003

Tobacco Control Successes in California: A Focus on Young People, Results from the California Tobacco Surveys, 1990-2002

California Department of Health Services
Tobacco Control Section

*Prepared by
Cancer Prevention and Control Program
University of California, San Diego*



Gray Davis, Governor
State of California

Grantland Johnson, Secretary
California Health and Human Services Agency

Diana M. Bonta, R.N., Dr.P.H., Director
California Department of Health Services



This report was prepared under contract # 01-163780 between the University of California, San Diego and the California Department of Health Services, and the value of the contract was \$2,304,867. The fieldwork for the 2002 California Tobacco Survey was subcontracted to Westat, Inc., and the value of the subcontract was \$1,998,306. Any interpretations of data or conclusions expressed in this report are those of the authors and may not represent the views of the State of California.

Suggested Citation:

Gilpin EA, White MM, White VM, Distefan JM, Trinidad DR, James L, Lee L, Major J, Kealey S, Pierce JP. *Tobacco Control Successes in California: A Focus on Young People, Results from the California Tobacco Surveys, 1990-2002*. La Jolla, CA: University of California, San Diego; 2004.

TOBACCO CONTROL SUCCESSES IN CALIFORNIA: A FOCUS ON YOUNG PEOPLE

TABLE OF CONTENTS

| | |
|--|------|
| Executive Summary and Key Findings..... | I-i |
| Chapter 1 | |
| Tobacco Control Progress in California and the Rest of the United States | |
| KEY FINDINGS..... | 1-2 |
| Introduction..... | 1-3 |
| 1. Tobacco Control Progress Nationwide..... | 1-5 |
| Cigarette Price..... | 1-6 |
| Smoke-free Workplaces..... | 1-7 |
| Smoke-free Homes..... | 1-8 |
| 2. Per Capita Cigarette Consumption..... | 1-10 |
| 3. Adult Smoking Prevalence..... | 1-11 |
| 4. Youth Smoking Prevalence..... | 1-13 |
| 5. Summary..... | 1-13 |
| APPENDIX..... | 1-16 |
| 1. Adult Smoking Prevalence..... | 1-16 |
| 2. Adolescent Smoking Prevalence..... | 1-17 |
| GLOSSARY..... | 1-20 |
| REFERENCES..... | 1-21 |
| Chapter 2 | |
| Trends in Tobacco Use in California | |
| KEY FINDINGS..... | 2-2 |
| Introduction..... | 2-3 |
| 1. Current Smoking Prevalence Among Adults..... | 2-4 |
| 2. Current Smoking Prevalence for Demographic Subgroups of the Population..... | 2-6 |
| Gender..... | 2-6 |
| Age..... | 2-7 |
| Race/Ethnicity..... | 2-8 |
| Education..... | 2-9 |
| 3. Current Smoking Prevalence Among Adults by Region..... | 2-10 |
| 4. What Contributed to the Decline in Smoking?..... | 2-12 |
| Is There Evidence of Under-reporting?..... | 2-13 |
| Are Smokers Who Have Not Quit More Nicotine Dependent?..... | 2-14 |
| 5. Adult Use of Other Tobacco Products..... | 2-16 |
| 6. Adolescent Smoking Prevalence..... | 2-18 |
| 7. Adolescent Smoking Prevalence by Region..... | 2-20 |
| 8. Adolescent Use of Other Tobacco Products..... | 2-21 |
| 9. Summary..... | 2-23 |
| APPENDIX..... | 2-25 |
| 1. Standardized Adult Smoking Prevalence for Demographic Groups..... | 2-25 |
| 2. Demographic Comparison of Groups of Current Smokers in 2002..... | 2-28 |
| 3. Adult Use of Other Tobacco Products-Demographics..... | 2-29 |
| 4. Adolescent Use of Other Tobacco Products-Demographics..... | 2-30 |
| GLOSSARY..... | 2-34 |
| REFERENCES..... | 2-35 |
| Chapter 3 | |
| Young Adults: Smoking Prevalence, Uptake Patterns, and Vulnerability to Smoking | |
| KEY FINDINGS..... | 3-2 |
| Introduction..... | 3-3 |
| 1. Trends in Smoking Prevalence Among Young Adults..... | 3-4 |
| Overall and by Gender..... | 3-4 |
| Age..... | 3-5 |

| | |
|---|-------------|
| Race/Ethnicity..... | 3-6 |
| Education..... | 3-6 |
| 2. Changes in the Uptake Pattern in Age Groups of Young Adults..... | 3-7 |
| Age at First Cigarette..... | 3-7 |
| Progression to Regular Smoking..... | 3-8 |
| 3. Smoking Behavior Among Young Adults in 2002..... | 3-11 |
| Categorizing Smoking Behavior..... | 3-11 |
| Risk for Future Smoking..... | 3-13 |
| 4. Summary..... | 3-17 |
| APPENDIX..... | 3-19 |
| 1. Smoking Prevalence in Demographic Groups of Young Adults..... | 3-19 |
| 2. Population Prevalence of Smoking Status Categories in Demographic Subgroups..... | 3-19 |
| GLOSSARY..... | 3-25 |
| REFERENCES..... | 3-26 |
| Chapter 4 | |
| Young Adults: Smoking Behavior and Attitudes Among Current Smokers | |
| KEY FINDINGS..... | 4-2 |
| Introduction..... | 4-3 |
| 1. Age Group Distribution of Current Smokers..... | 4-3 |
| 2. Age At Which Smokers Started Smoking..... | 4-5 |
| 3. Quitting History..... | 4-7 |
| 4. Current Consumption and Changes in Consumption..... | 4-10 |
| 5. Perceptions about Future Smoking..... | 4-11 |
| 6. Perceptions about Own Smoking..... | 4-12 |
| 7. Purchasing Behavior and Brand Preference..... | 4-13 |
| 8. Summary..... | 4-14 |
| APPENDIX..... | 4-16 |
| Young Adult Brand Preference by Smoking Level..... | 4-16 |
| GLOSSARY..... | 4-17 |
| REFERENCES..... | 4-18 |
| Chapter 5 | |
| Young Adults: Social Smoking and Tobacco Promotions at Bars or Clubs | |
| KEY FINDINGS..... | 5-2 |
| Introduction..... | 5-3 |
| 1. Situations in Which Young Adults Smoke..... | 5-4 |
| 2. Social Smoking..... | 5-5 |
| 3. Young Adult Attendance at Bars or Clubs..... | 5-7 |
| Enjoyment of Drinking While Smoking..... | 5-7 |
| Attendance at Bars or Clubs..... | 5-8 |
| 4. Recall of Tobacco Industry Promotions in Clubs or Bars..... | 5-10 |
| 5. Receptivity and Attitudes Toward Tobacco Companies and Promotions..... | 5-12 |
| 6. Summary..... | 5-14 |
| APPENDIX..... | 5-15 |
| 1. Social Smokers Compared to Other Smokers in Demographic Subgroups..... | 5-15 |
| 2. Bar or Club Attendance in Demographic Subgroups..... | 5-16 |
| 3. Receptivity and Attitudes Toward Tobacco Industry..... | 5-17 |
| GLOSSARY..... | 5-18 |
| REFERENCES..... | 5-19 |
| Chapter 6 | |
| Protection of Nonsmokers from Secondhand Smoke | |
| KEY FINDINGS..... | 6-2 |
| Introduction..... | 6-3 |
| 1. Smoke-free Workplaces..... | 6-4 |
| Report of Smoke-free Workplaces..... | 6-4 |
| Exposure of Nonsmokers to Secondhand Tobacco Smoke at Work..... | 6-5 |
| 2. Exposure to Secondhand Smoke at Home..... | 6-9 |
| Home Smoking Restrictions..... | 6-9 |
| Protection of Children and Youth from Secondhand Tobacco Smoke in the Home..... | 6-11 |

| | |
|---|-------------|
| How Does California Compare to the Rest of the US in Protecting Youth? | 6-12 |
| 3. Exposure to Secondhand Tobacco Smoke in Places Other Than Work or Home | 6-13 |
| 4. Beliefs About Secondhand Smoke | 6-15 |
| Primarily a Health Hazard or an Annoyance? | 6-15 |
| Beliefs About Harmfulness of Secondhand Smoke | 6-16 |
| Nonsmokers' Right to Breathe Clean Air | 6-17 |
| Avoidance of Secondhand Smoke | 6-17 |
| 5. Support for Smoking Restrictions | 6-19 |
| California vs. Rest of US | 6-19 |
| Californians' Opinions About Smoking Bans in Places Where Smoking is Presently Allowed | 6-22 |
| 6. Summary | 6-24 |
| APPENDIX | 6-26 |
| 1. Exposure to Secondhand Smoke in the Workplace | 6-26 |
| 2. Exposure to Secondhand Smoke in the Home | 6-31 |
| 3. Nonsmoker Responses when Exposed to Secondhand Smoke | 6-32 |
| 4. Attitudes About Where Smoking Should Not be Allowed | 6-33 |
| GLOSSARY | 6-36 |
| REFERENCES | 6-37 |
| Chapter 7 | |
| Adolescent Smoking Behavior | |
| KEY FINDINGS | 7-2 |
| Introduction | 7-3 |
| 1. Trends in Key Measures of Smoking Behavior by Age | 7-4 |
| 2. Trends in Never Smokers at Lowest Risk of Starting to Smoke | 7-7 |
| The Earliest Stages of the Smoking Uptake Process | 7-7 |
| Trends in Committed Never Smokers who Have Never Been Curious about Smoking | 7-8 |
| 3. Quitting among Adolescent Established Smokers | 7-9 |
| 4. Potential Psychosocial Causes for the Substantial Decreases in Adolescent Smoking | 7-11 |
| Trends in Never Smokers' Exposure to Best Friends Who Smoke | 7-12 |
| Never Smoker Perception of Peer Norms about Smoking | 7-13 |
| Parental Attitudes Towards Adolescent Smoking Behavior | 7-14 |
| Trends in Beliefs in Benefits to Smoking | 7-16 |
| Trends in Beliefs that Should Reduce the Likelihood of Adolescent Smoking Initiation | 7-17 |
| Perceptions about the Utility of Nicotine Replacement Therapy for Smoking Cessation | 7-18 |
| Personal Attitudes against Smoking and Smokers | 7-19 |
| 5. Summary | 7-21 |
| APPENDIX | 7-23 |
| 1. Demographic Trends in California Adolescents for Key Measures of Smoking Behavior | 7-23 |
| 2. Demographic Trends in Important Psychosocial Predictors of Adolescent Smoking | 7-26 |
| GLOSSARY | 7-29 |
| REFERENCES | 7-30 |
| Chapter 8 | |
| Smoking Cessation | |
| KEY FINDINGS | 8-2 |
| Introduction | 8-3 |
| 1. Trends in Predictors of Successful Cessation | 8-4 |
| Indicators of Addiction Level | 8-4 |
| Recent Quitting History | 8-6 |
| Life-time Quitting History | 8-8 |
| Lapses Among Former Smokers | 8-9 |
| 2. Smokers Who May Never Quit | 8-10 |
| 3. The Role of Workplace and Home Smoking Bans | 8-12 |
| 4. Smoking Cessation Assistance | 8-14 |
| Trends in the Use of Cessation Assistance | 8-14 |
| Use of NRT for Reasons Other than Cessation | 8-15 |
| Effectiveness of Pharmaceutical Aids | 8-17 |
| 5. Physician Advice and Referral for Smoking Cessation | 8-19 |
| 6. Summary | 8-21 |

| | |
|--|--------------|
| APPENDIX..... | 8-24 |
| 1. Trends in Predictors of Successful Cessation..... | 8-24 |
| 2. Smokers Who May Never Quit..... | 8-29 |
| 3. The Role of Workplace and Home Smoking Bans..... | 8-30 |
| 4. Smoking Cessation Assistance..... | 8-31 |
| 5. Physician Advice and Referral for Smoking Cessation..... | 8-33 |
| GLOSSARY..... | 8-35 |
| REFERENCES..... | 8-36 |
| Chapter 9 | |
| Price, Taxes, and Purchasing Behavior | |
| KEY FINDINGS..... | 9-2 |
| Introduction..... | 9-3 |
| 1. Trends in Cigarette Price..... | 9-4 |
| Average Price Per Pack of Cigarettes..... | 9-4 |
| Price Elasticity..... | 9-4 |
| Reported Price Smokers Paid for Cigarettes..... | 9-6 |
| Worry About Cigarette Cost..... | 9-9 |
| 2. Support for a Further Cigarette Tax Increase..... | 9-10 |
| 3. Purchasing Behaviors..... | 9-12 |
| Purchasing by the Pack or Carton..... | 9-12 |
| Reasons for Purchasing by the Pack Instead of by the Carton..... | 9-14 |
| How Price has Influenced Purchasing Decisions and/or Smoking Behavior..... | 9-16 |
| Where Smokers Buy Cigarettes..... | 9-17 |
| Promotional Offers..... | 9-21 |
| 4. Adolescents..... | 9-23 |
| 5. Summary..... | 9-24 |
| APPENDIX..... | 9-26 |
| 1. Amount Smokers Spent on Cigarettes in Demographic Subgroups..... | 9-26 |
| 2. Support for New Excise Tax Increase in Demographic Subgroups..... | 9-29 |
| GLOSSARY..... | 9-30 |
| REFERENCES..... | 9-31 |
| Chapter 10 | |
| Media Influences on Smoking | |
| KEY FINDINGS..... | 10-2 |
| Introduction..... | 10-3 |
| 1. Recall of Anti-tobacco Media..... | 10-4 |
| 2. Cigarette Advertising..... | 10-6 |
| Favorite Ads of Adults and Adolescents..... | 10-6 |
| Ads in Small Stores Seen by Adolescents..... | 10-8 |
| 3. Cigarette Promotional Items..... | 10-9 |
| Possession and Willingness to Use Promotional Items..... | 10-10 |
| Adolescent Interest in Promotional Items in 2002..... | 10-12 |
| How Adolescents Obtained Promotional Items..... | 10-13 |
| Adolescents Who Saw Promotional Item Catalogs and Offers..... | 10-13 |
| 4. Tobacco Company Sponsorships..... | 10-15 |
| Tobacco Logos at Sports Events Seen on Television..... | 10-15 |
| Tobacco Brand Name Event Sponsorships..... | 10-16 |
| 5. Summary..... | 10-17 |
| APPENDIX..... | 10-19 |
| 1. Exposure to Anti-Tobacco Media..... | 10-19 |
| 2. Favorite Cigarette Advertisement..... | 10-22 |
| 3. Cigarette Promotional Items..... | 10-24 |
| 4. Exposure to Cigarette Logos on Televised Sporting Events..... | 10-27 |
| GLOSSARY..... | 10-28 |
| REFERENCES..... | 10-29 |
| Chapter 11 | |
| Limiting Youth Access to Cigarettes | |
| KEY FINDINGS..... | 11-2 |

| | |
|---|-------|
| Introduction..... | 11-3 |
| 1. Adolescents' Perceived Ease of Obtaining Cigarettes..... | 11-4 |
| 2. Adolescent Sources of Cigarettes..... | 11-7 |
| Offer of a Cigarette..... | 11-7 |
| Social vs. Commercial Sources..... | 11-8 |
| Nonconventional Commercial Sources..... | 11-11 |
| Regular Commercial Sources..... | 11-12 |
| 3. Enforcement of Laws Around Illegal Sales of Tobacco to Minors..... | 11-13 |
| 4. Summary..... | 11-13 |
| APPENDIX..... | 11-15 |
| 1. Adolescents who think cigarettes are easy to get..... | 11-15 |
| 2. Adolescent never smokers offered a cigarette..... | 11-18 |
| 3. Usual Source of Cigarettes – Data..... | 11-19 |
| GLOSSARY..... | 11-20 |
| REFERENCES..... | 11-21 |

Chapter 12

Smoke-free Schools: Policies and Compliance

| | |
|--|-------|
| KEY FINDINGS..... | 12-2 |
| Introduction..... | 12-3 |
| 1. Student Compliance with Smoke-free School Policies..... | 12-4 |
| Obeying the Rule Not to Smoke..... | 12-4 |
| How Many Students Witnessed Smoking at School?..... | 12-5 |
| 2. Trends in Students' Perceptions of Teachers' Smoking in School..... | 12-6 |
| 3. Trends in Student Preferences for Smoke-free School Grounds..... | 12-7 |
| Characteristics of Adolescent Current Smokers Who Favor Smoke-free School Grounds..... | 12-8 |
| How Do Adolescent Current Smokers View the Effectiveness of School No-Smoking Policies?..... | 12-9 |
| 4. Trends in Smoking Health-Risk Classes at Schools: 1990-2002..... | 12-10 |
| Adolescent Perception of Health-Class Effectiveness in Deterring Smoking..... | 12-11 |
| 5. Summary..... | 12-12 |
| APPENDIX..... | 12-14 |
| 1. Student Compliance with Smoke-free School Policies..... | 12-14 |
| Obeying the Rule Not to Smoke..... | 12-14 |
| How Many Students Witnessed Smoking in School?..... | 12-15 |
| 2. Trends in Perceptions of Teachers' Smoking..... | 12-16 |
| 3. Trends in Student Preferences for Smoke-free School Grounds: 1993-2002..... | 12-17 |
| 4. Trends in Smoking Health-Risk Classes at Schools 1990-1999..... | 12-18 |
| Adolescent Perception of Health Class Effectiveness in Deterring Smoking..... | 12-19 |
| GLOSSARY..... | 12-20 |
| REFERENCES..... | 12-21 |

Chapter 13

A Summary of Racial/Ethnic Differences

| | |
|--|-------|
| KEY FINDINGS..... | 13-2 |
| Introduction..... | 13-3 |
| 1. Trends in Adult Tobacco Use in California..... | 13-3 |
| 2. Young Adult Uptake Patterns and Vulnerability to Smoking (Chapter 3)..... | 13-6 |
| 3. Adolescent Smoking Behavior..... | 13-8 |
| 4. Protection of Nonsmokers from Secondhand Smoke (Chapter 6)..... | 13-12 |
| 5. Smoking Cessation (Chapter 8)..... | 13-16 |
| 6. Price Sensitivity and Taxes (Chapter 9)..... | 13-20 |
| 7. Media Influences on Smoking..... | 13-22 |
| 8. Limiting Youth Access to Cigarettes (Chapter 11)..... | 13-25 |
| 9. Smoke-free Schools (Chapter 12)..... | 13-27 |
| 10. Summary of Racial/Ethnic Differences..... | 13-30 |
| GLOSSARY..... | 13-34 |
| REFERENCES..... | 13-36 |

TOBACCO CONTROL **SUCCESSES** IN CALIFORNIA:
A FOCUS ON YOUNG PEOPLE

Executive Summary

and

Selected Key Findings

TOBACCO CONTROL SUCCESSES IN CALIFORNIA: A FOCUS ON YOUNG PEOPLE

EXECUTIVE SUMMARY

The California Tobacco Surveys (CTS), along with other data sources, have helped document the progress and successes of over a decade of tobacco control efforts in California. Some of the most important findings are highlighted below, with reference to Selected Key Findings (*KF*) appearing on the following pages that provide more detail. Since young people are the focus of this report, findings pertaining to adolescents and young adults are presented first.

Adolescents (12-17 years)

- § Smoking initiation has decreased dramatically since 1996. In 2002, only 5% of adolescents smoked in the past month. *KF-2.4, 7.1, 2, 3*
- § The percentage of adolescents who are committed never smokers and have never been curious about smoking has increased, particularly among 12- to 13-year-olds. This group is at lowest risk for future smoking. *KF-7.5*
- § The percentage of adolescents who were receptive to tobacco industry advertising and promotional practices has decreased sharply since 1996. *KF-10.5, 6*
- § The percentage of adolescents who felt that it was easy to get cigarettes has decreased since 1996. *KF-11.1, 2, 3*
- § Smoking on school grounds has declined markedly and social norms have changed, so that the vast majority of students support a ban on smoking on school grounds. *KF-12.1, 2, 3*

Young Adults (18-29 years)

- For the first time, the 2002 CTS included a special section to gain a better understanding of the smoking behavior of young adults. Curtailing smoking in this group has huge implications for public health in the future, but the tobacco industry has recognized that young adults are a good target for their promotional efforts.
- § The smoking uptake process appears to have extended well into the young adult years in the 1990s. However, young adult prevalence declined significantly between 1999 and 2002, with the decline significant for young women but not young men. *KF-3.1, 2, 3*
 - § Few young adult smokers were heavy daily smokers, and nearly half were non-daily smokers, the majority of whom have never smoked daily. Nearly one-third of current smokers said they smoke only when others are smoking. *KF-4.1, 5.1*

- § One-third of those who had smoked at least 100 cigarettes in their lifetime were former smokers, but nearly 60% of these were vulnerable to relapse. *KF-3.4*
- § Over half of experimenters (those who had smoked but never reached 100 cigarettes) were at risk for future smoking. *KF-3.5*
- § The majority of young adult smokers said they enjoyed smoking while drinking, and a third go to bars or clubs at least sometimes. *KF-5.3, 4*
- § Nearly 60% of bar or club attenders recalled seeing tobacco advertising and promotions in this setting. *KF-5.5*

Adults (18+ years)

- § Monthly per capita cigarette consumption decreased to 3.9 packs/person in 2002, less than half the level of the rest of the United States. *KF-1.1*
- § Adult smoking prevalence declined to around 15% in 2002, with recent significant declines in women but not men. *KF-2.1, 2*
- § Increased quitting appears to be responsible for the decline in prevalence; future declines will likely be the result of reduced initiation as well. *KF-2.3*

- § The effectiveness of nicotine replacement therapy for smoking cessation has further declined, but antidepressants show signs of effectiveness. *KF-8.5*
- § Support for a further cigarette excise tax increase remains high, with over 60% of Californians in 2002 saying it should be raised by at least \$0.50/pack. *KF-9.1*

Protection from Secondhand Smoke

- § Exposure to secondhand smoke in the workplace declined again in recent years to 12%. However, in 2002, the majority of those exposed were exposed on a daily basis. *KF-6.1, 2*
- § Protection of children and adolescents from exposure to secondhand smoke in the home is at high levels. *KF-6.4*
- § While Hispanics are more protected at home, they appear less protected in the workplace. African American children and adolescents still are the least protected at home. *KF-6.4, 13.4*
- § In 2002, Californians showed high levels of support for new venues to be smoke-free, including children's play yards and sports fields, the common areas of hotels/motels, and the common areas of apartment buildings/condos. *KF-6.5*

SELECTED KEY FINDINGS

Chapter 1 Tobacco Control Progress in California and the Rest of the United States

This chapter presents national and California cigarette consumption and smoking prevalence from national data sources. For estimates of smoking prevalence in California from the California Tobacco Survey, please refer to Chapter 2.

- 1) Per capita cigarette consumption has declined more in California than in the rest of the US** (a 60.5% factor decrease in California vs. a 40.1% factor decrease in the rest of the US between 1988 and 2002). By 2002, California's per capita cigarette consumption was 51.4% of that in the rest of the US (3.9 packs/month compared to 7.5 packs/month in the rest of the US).
- 2) Adult (18+ years) smoking prevalence has declined more in California than in the rest of the US.** Between 1993 and 2002, adult smoking prevalence declined by a factor of 21.8% in California compared to a factor of 14.0% in the rest of the US.
- 3) Youth (15-20 years) smoking prevalence in California has declined from its peak in 1996**, by a factor of 37.9%. This marked decline was not observed among youth in the rest of the US, so that in 2002, Californians showed a lower smoking prevalence by a factor of 45.4% than youth in the rest of the US.

Chapter 2 Trends in Tobacco Use in California

- 1) Smoking prevalence has declined substantially since 1990, reaching a low of 15.4% among adults in 2002.** Standardized estimates (to 2002 population totals) indicate that adult smoking prevalence declined by a factor of 21% between 1990 and 2002, and by a factor of 10% between 1999 and 2002.
- 2) Prevalence among women was lower than among men, and women showed double the decline between 1999 and 2002** (14% factor decrease) compared to men (7% factor decrease). Young women aged 18 to 24 years also showed double the decline between 1999 and 2002 (18% factor decline) compared to young men (9% factor decline). The recent declines were significant for women, but not for men.
- 3) The recent decline in smoking prevalence appeared to be mostly from increased smoking cessation by older adults.** Further, cessation should continue at comparable rates, as suggested by the lack of significant evidence that the pool of remaining smokers is markedly more nicotine dependent than smokers earlier in the decade. Finally, additional declines in smoking prevalence will be the result of new cohorts of young adults with much lower rates of ever smoking.

- 4) **Smoking prevalence among adolescents has declined substantially since 1996, reaching 5.0% in 2002.** From its peak in 1996, smoking in 12- to 17-year olds (any smoking in last 30 days) declined by a factor of 33% by 1999 and by a factor of 56% by 2002.

Chapter 3 Young Adults: Smoking Prevalence, Uptake Patterns and Vulnerability to Smoking

- 1) **Smoking prevalence among young Californians (18-29 years) decreased by a factor of 16.9% since 1999** (from 18.7% in 1999 to 17.0% in 2002), following a steady increase during the mid-1990s.
- 2) **Smoking prevalence differed substantially among demographic groups of young adults.** Prevalence rates for young women were lower than those of young men. Between 1999 and 2002, smoking prevalence decreased the most in women and young adults 18-24 years. African Americans showed an abrupt decline from 1990 to 1993 and their prevalence remained low thereafter. Those with no college education had higher prevalence than college attenders, but unlike the latter group, their prevalence declined significantly from 1990 to 2002.
- 3) **The age at which regular smoking commenced increased in recent years compared to the early 1990s.** In 1990, 33.2% of 22- to 25-year-olds started regular smoking at 18 years of age or older compared to 43.8% in 2002.
- 4) **About one third (33.0%) of young adults who had smoked at least 100 cigarettes in their lifetime reported that they were no longer smoking, but nearly 60% (59.6%) of these young adults were still vulnerable to relapse:** all 27.9% of those who quit regular smoking in the previous year, and 43.9% of those quit for more than a year were considered vulnerable to relapse (thought about smoking or situations in which they might smoke).
- 5) **Some young adults appeared still to be experimenting (smoked 1 to 99 cigarettes in lifetime) and at risk to become future smokers.** Almost 30% had smoked (29.3%): just under half of these experimenters (47.8%) had not smoked in the past year and said they definitely would not smoke in the next year, but nearly one quarter (23.2%) were current experimenters, and the remainder had smoked in the past year. Thus, just over half (52.2%) of experimenters were still at risk for future smoking.

Chapter 4 Young Adults: Smoking Behavior and Attitudes Among Current Smokers

- 1) **Only 4.4% of young adults smoked ≥ 15 cigarettes/day** (23.9% of all smokers in this age group). Further, 7.1% of all young adults were non-daily smokers, representing 40% of all current young adult smokers. Of these non-daily smokers, over half had never smoked on a daily basis.

- 2) **Over 70% (71.0%) of young adult smokers have made a quit attempt**, with nearly 60% (59.4%) making an attempt in the past year. Overall, 29.1% of current young adult smokers had stayed off cigarettes for at least 6 months sometime after they became regular smokers, and 14.0% had stayed off for a year or longer. Once-daily non-daily smokers showed the highest percentages for these long-term periods of abstinence (6+ months: 46.3%, 1+years: 23.8%).
- 3) **The majority (68.0%) of all young adult smokers said that they would no longer be smoking in 5 years.** However, 42.9% said they wanted to quit but gave no time frame for when they would. Only 1.7% thought they would be smoking more than they do now.

Chapter 5 Young Adults: Social Smoking and Tobacco Promotions at Bars or Clubs

- 1) **In 2002, nearly a third (31.0%) of young adult smokers reported that they only smoked when others were smoking.** Non-daily smokers who confined their smoking in this manner were defined as social smokers.
- 2) **Social smokers smoked only about half the number of cigarettes per month (23.3 cigarettes/month) as other non-daily smokers (55.1 cigarettes/month), and they were more likely to smoke mostly on weekends.** Compared to other non-daily smokers, fewer social smokers reported ever being regular smokers, thought themselves to be addicted, or thought smoking was harming their health, and they were more likely to think they could quit anytime they wanted.
- 3) **There is a strong relationship between drinking and smoking in young adults.** While daily smokers were more likely to agree that they enjoyed smoking while drinking (86.8%), 69.1% of social smokers and 61.1% of other non-daily smokers also agreed. Smokers 18-21 years, mostly under the legal age for drinking, also showed a high percentage who enjoyed smoking while drinking (72.4%).
- 4) **About one third (33.8%) of young adults said they went to bars or clubs frequently or sometimes.** Attendance was highest among current smoker groups ($\geq 50\%$ attended) and was also high among ex-smokers and ex-experimenters at risk for future smoking (42-43% attended). Fewer than 30% of never smokers attended bars or clubs at least sometimes.
- 5) **Recall of seeing cigarette advertising or promotions in bars or clubs was high (57.9% overall), regardless of risk for future smoking.**

Chapter 6 Protection of Nonsmokers from Secondhand Smoke

- 1) **Nonsmoker exposure to secondhand smoke in the workplace has again declined.** In 2002, only 11.9% of indoor workers reported that they were exposed to secondhand smoke in their work area in the last 2 weeks, a decline by a factor of 59.0% from the level reported in 1990 (29.0%).

- 2) The majority of nonsmokers exposed to secondhand smoke in the workplace were exposed on a daily basis** (64.3%), while 14.4% said it was a rare occurrence. Although the rate of daily exposure among office workers was relatively low (6.0% in 2002), the large number of office workers makes this the type of indoor workplace responsible for more nonsmokers exposed on a daily basis than any other type of workplace (296,601 California nonsmokers out of 818,587 exposed daily).
- 3) Over three fourths (76.9%) of California homes were smoke-free in 2002**, a slight but significant increase from 1999 (72.8%), and an increase by a factor of 51.1% over the 1993 rate. In 2002, nearly half of smokers lived in smoke-free homes (49.0%), not a significant increase from 1999 (46.6%).
- 4) Over 90% of California's children and adolescents were protected from secondhand smoke in the home.** In 2002, 90.2% of California children and adolescents (0 to 17 years of age) were protected from secondhand smoke at home, a slight but significant increase from the 1996 rate (86.3%). African American children and adolescents remained the least protected (85.7%), but this group has shown gains similar to other racial/ethnic groups.
- 5) In 2002, Californians showed high levels of support for additional smoke-free venues**, including children's play yards and sports fields (90.5%), common areas of hotels/motels (88.8%), and the common areas of apartment buildings/condos (87.1%).

Chapter 7 Adolescent Smoking Behavior

- 1) The percentage of 12- to 13-year-olds who reported ever smoking has declined since the start of the California Tobacco Program.** Between 1990 and 1996, ever smoking rates declined consistently at a rate of 0.7% per year, and this rate doubled to 1.5% per year between 1996 and 2002. In 2002, only 5.6% reported having smoked, a factor decline of 70% from 1990.
- 2) Among 14- to 15-year-olds, the decline in ever smoking began after 1996.** Between 1996 and 2002, reported ever smoking among 14- to 15-year-olds declined at a rate of 2.9% per year to 18.4% in 2002, a factor decline of 48.2% since 1996.
- 3) Among 16- to 17-year-olds, ever smoking decreased after 1996 at a rate similar to that of other adolescents (3.0% per year),** so that by 2002, 35.1% reported having smoked, a factor decline of 33.6%.
- 4) The percentage of established adolescent smokers (smoked at least 100 cigarettes in lifetime) started to decline after 1996.** Among 16- to 17-year-olds, this percentage declined by a factor of 59.3% between 1996 and 2002, reaching a low of 6.1% in this age group.

- 5) The percentage of California adolescents considered at very low risk for starting to smoke (committed never smokers who definitely had never been curious about smoking) is increasing, particularly among 12- to 13-year-olds.** In 2002, 37.9% of 12- to 13-year-olds, 29.8% of 14- to 15-year-olds, and 28.3% of 16- to 17-year-olds were at very low risk. However, the majority of California adolescents appeared still vulnerable to start smoking or had already started.

Chapter 8 Protection of Nonsmokers from Secondhand Smoke

Workplace smoking bans, effective in 1995, appeared responsible for major changes in the smoking behavior of Californians. Thus, the results summarized below focus on further changes between 1996 and 2002.

Smoking Behavior

- 1) Cigarette consumption level, an indicator of addiction, continues to decrease.** In 2002, over 60% of adult smokers were either non-daily smokers or smoked fewer than 15 cigarettes/day (61.5%), compared to 55.1% in 1996. Nearly 30% (28.2%) of all smokers were non-daily smokers, unchanged from 1999 (29.0 %), but significantly increased from 1996 (24.6%).
- 2) Over 60% of Californians made a quit attempt in 2002, just as they had in 1999.** Quit attempts of a day or longer increased slightly from 56.0% in 1996 to 62.1% in 2002, as did those lasting a week or longer (36.1% in 1996 vs. 40.5% in 2002). In 2002, 22.0% of current smokers reported staying off cigarettes for at least a year since they became regular smokers, essentially unchanged from 23.3% in 1996.

Smoking Cessation Assistance

- 3) The percentage of California quitters using any form of cessation assistance for their most recent attempt has increased significantly since 1996** (24.3% in 2002 vs. 19.8% in 1996). The percent using nicotine replacement therapy in 2002 was 15.7% (significantly increased from 12.7% in 1996), and the percent using an antidepressant was 6.1%, not significantly higher than 5.2% in 1999.
- 4) Almost a third of current smokers have used nicotine replacement therapy at some time (31.6%),** including nearly half (47.0%) of moderate-to-heavy daily smokers. Most reported using nicotine replacement therapy to quit (86.4%); however, 7.4% reported using nicotine replacement to tide them over in situations where they couldn't smoke, and 4.0% to cut down on the amount they smoked.
- 5) The effectiveness of nicotine replacement therapy in helping smokers stay quit diminished further in 2002 compared to earlier years,** so that even a short-term benefit is now questionable. On the other hand, these population data suggested that smokers prescribed antidepressants for cessation showed an advantage.
- 6) In 2002, close to 60% of smokers who had visited a physician in the last year received physician advice to quit (57.2%),** a factor increase of 13.3% from 1996 when this percentage was 50.5%.

Chapter 9 Prices, Taxes, and Purchasing Behavior

- 1) In 2002, support for a further excise tax increase of at least \$0.50/pack of cigarettes showed modest increases among both smokers and nonsmokers.** Overall, 60.8% of the population supported at least a \$0.50/pack tax increase, compared to 58.2% in 1999 and 57.1% in 1996.
- 2) Changes in per capita cigarette consumption since 1999 were due to more than changes in cigarette prices.** While price elasticity predicted the decline in cigarette consumption from 1998 to 1999, cigarette consumption continued to decline since 1999, during a period of relative price stability.
- 3) Tobacco industry emphasis on promotional offers appears to be a successful marketing strategy.** Promotional offers that subsidize the price consumers pay for cigarettes (e.g., two for the price of one) were seen by 23.3% of California smokers at least half the time they bought cigarettes in 2002. Altogether, 32.7% of smokers took advantage of an offer every time they saw one.

Chapter 10 Media Influences on Smoking

Anti-smoking Media

- 1) Televised anti-smoking messages reached saturation levels by 1999.** In 2002, close to 90% of adolescents and young adults recalled seeing these ads at least “a few times” in the last month.
- 2) In 2002, significantly more older adolescents and young adults had seen “a lot” of televised anti-smoking media in the last month** (42.0% and 37.9%, respectively) compared to 1999 (29.1% and 29.9%, respectively).

Tobacco Industry Marketing Activities

- 3) Despite MSA prohibitions on marketing of promotional products, nearly 70% of adolescents saw tobacco promotional product catalogs in small neighborhood stores in 2002,** an increase from 1999 levels by a factor of 8%.
- 4) The percentage of 12- to 14-year-olds who saw tobacco logos on televised sports events at least a few times increased significantly between 1999 and 2002** (40.5% to 45.6%, a 12.5% factor increase). Fewer adults and adolescents saw tobacco logos in 1999 than in 1996, and adults showed further significant declines between 1999 and 2002.
- 5) More than half of Californians did not name a favorite cigarette advertisement in 2002,** a significant decrease from 1999. In 2002, these percentages were 65.2% for young adolescents (12-14 years), 53.4% for older adolescents (15-17 years), 54.8% for young adults (18-24 years), 59.0% for adults 25 to 40 years old, and 66.3% for adults more than 40 years old.

- 6) **Significantly fewer adolescents obtained tobacco brand promotional items in 2002**, compared to the peak in 1996, from 8.1% to 6.2% for 12- to 14-year-olds and from 9.8% to 7.5% for 15- to 17-year-olds, a decline by factors of 46% and 52%, respectively.

Chapter 11 Limiting Youth Access to Cigarettes

- 1) **The perceived ease of buying a few cigarettes has continued to decline since 1996.** This decline was highly significant among never smokers and experimenters. For example, among committed never smokers, perceived ease declined from 29.1% in 1999 to 17.6% in 2002, a factor decline of 39.5%.
- 2) **The percentage of all 15- to 17-year olds reporting that they thought it would be easy to buy a pack of cigarettes declined significantly between 1999 and 2002** (40.8% to 34.2%; a factor decline of 16.2%). However, among ever smokers the percentages were the same in 1999 and 2002.
- 3) **Adolescent never smokers' perception that cigarettes are easy to get decreased between 1996 and 2002.** In 2002, 45.9% of adolescent never smokers said cigarettes were easy to get. This level was 48.0% in 1999, but was significantly higher in 1996, at 57.2%.
- 4) **Most adolescent smokers continued to obtain cigarettes through social sources.** Among ever smokers in 2002, 58.2% reported their usual source of cigarettes as "someone gives them to me." This rate was much higher for experimenters (69.2%), than for daily established smokers (16.4%), who generally buy their cigarettes themselves or through an intermediary.
- 5) **In 1999 and 2002, very few adolescents reported obtaining their cigarettes via alternative commercial sources;** none of the adolescents in the samples reported using the Internet to buy cigarettes in the last year.
- 6) **In 2002, only about one quarter (24.5%) of adolescents who usually bought their own cigarettes were asked for ID the last time they attempted to purchase cigarettes,** indicating a clear need for further enforcement of this law.

Chapter 12 Smoke-Free Schools: Policies and Compliance

- 1) **Student compliance with school no-smoking rules increased** to 71.5% in 2002, up significantly from 66.7% in 1999 and 40.7% in 1996.
- 2) **Smoking on school property is decreasing.** In 2002, only one-fifth (20.8%) of students reported seeing someone smoking on school property within the last 2 weeks, compared to over one-fourth in 1999 (26.3%), and over one-third in 1996 (36.0%).

- 3) The vast majority of all students supported a complete ban on smoking on school grounds** (90.5% in 2002). Even 69.1% of current smokers expressed this preference in 2002, up from 64.4% in 1999 and 55.8% in 1996.
- 4) Most students recalled having had a class on the health risks of smoking** (80.1% in 2002). However, significantly more public school students (80.9%) recalled having a smoking prevention curriculum compared with private school students (74.5%) in 2002.
- 5) The percentage of students who believed that classes on the health risks of smoking were effective has increased steadily** (from 43.1% in 1996 to 52.3% in 1999, and then to 54.4% in 2002). This trend was present even in students who had ever smoked a cigarette.

Chapter 13 A Summary of Racial/Ethnic Disparities in Tobacco Control

- 1) African Americans continued to exhibit the highest adult smoking prevalence rate** (20.8% in 2002), followed by Non-Hispanic Whites, Hispanics, and Asian/Pacific Islanders (PI). Among adult males, prevalence rates for Asian/Pis, Hispanics, and Non-Hispanic Whites were very similar (about 19%), while the prevalence among African Americans was significantly higher (23.9%).
- 2) Smoking prevalence among young African Americans (18-29 years) declined by a factor of 41.6% between 1990 and 1993**, and was significantly lower than smoking prevalence in Non-Hispanic Whites through 2002.
- 3) Smoking prevalence among adolescents was lowest among the Asian/PI group (3.7%), followed by African Americans (4.4%), Hispanics (5.0%), and Non-Hispanic Whites (5.8%).** Prevalence in the Asian/PI and African American groups was significantly different from prevalence in Non-Hispanic Whites. In 2002, 5.0% of all adolescents were current smokers.
- 4) Exposure to smoking in the workplace decreased markedly in all racial/ethnic groups between 1990 and 2002.** In all years, Hispanics were significantly more likely to report exposure compared to Non-Hispanic Whites.
- 5) In general, racial/ethnic minorities attempted to quit smoking at higher rates than Non-Hispanic Whites.** Hispanic smokers were more likely than Non-Hispanic Whites to stay off of cigarettes for a week or longer in all survey years.

Chapter 1

Tobacco Control Progress in California and the Rest of the United States

| | |
|--|-------------|
| KEY FINDINGS | 1-2 |
| Introduction | 1-3 |
| 1. Tobacco Control Progress Nationwide | 1-5 |
| Cigarette Price | 1-6 |
| Smoke-free Workplaces | 1-7 |
| Smoke-free Homes | 1-8 |
| 2. Per Capita Cigarette Consumption | 1-10 |
| 3. Adult Smoking Prevalence | 1-11 |
| 4. Youth Smoking Prevalence | 1-13 |
| 5. Summary | 1-13 |
| APPENDIX | 1-16 |
| 1. Adult Smoking Prevalence | 1-16 |
| 2. Adolescent Smoking Prevalence | 1-17 |
| GLOSSARY | 1-20 |
| REFERENCES | 1-21 |

Chapter

1

KEY FINDINGS

Tobacco Control Progress in California
and the Rest of the United States

This chapter presents national and California cigarette consumption and smoking prevalence from national data sources. For estimates of smoking prevalence in California from the California Tobacco Survey, please refer to Chapter 2.

Main Outcomes

- 1) Per capita cigarette consumption has declined more in California than in the rest of the US** (a 60.5% factor decrease in California vs. a 40.1% factor decrease in the rest of the US between 1988 and 2002). By 2002, California's per capita cigarette consumption was 51.4% of that in the rest of the US (3.9 packs/month compared to 7.5 packs/month in the rest of the US).
- 2) Adult (18+ years) smoking prevalence has declined more in California than in the rest of the US.** Between 1993 and 2002, adult smoking prevalence declined by a factor of 21.8% in California compared to a factor of 14.0% in the rest of the US.
- 3) Youth (15-20 years) smoking prevalence in California has declined from its peak in 1996**, by a factor of 37.9%. This marked decline was not observed among youth in the rest of the US, so that in 2002, Californians showed a lower smoking prevalence by a factor of 45.4% than youth in the rest of the US.

Initial Outcomes

- 4) Cigarette price increased in all states between 1993 and 2002.** In these years, nine to ten states had higher average cigarette prices than California. Over this period, 26 states, including California, raised their excise taxes by \$0.50/pack or more. In 2002, the highest average price/pack was \$5.68 in New York, compared to \$4.08 in California, with the lowest average price of \$2.98 in Kentucky.
- 5) Report of smoke-free indoor workplaces increased markedly both in California and in the rest of the US between 1993 and 1996.** Between 1993 and 2002, the percentage of indoor workers reporting a smoke-free workplace increased by a factor of 45.5% in California, by a factor of 87.5% in seven tobacco growing states, and by a factor of 56.9% in the other states.
- 6) With California in the vanguard, adoption of smoke-free homes has increased nationwide, but the gap is closing.** In 1993, the percentage of respondents with smoke-free homes in tobacco growing states was lower by a factor of 42.7%; and in the other states lower by a factor of 29.4% compared to California. However, by 2002, this factor was only 29.4% for the tobacco growing states and 15.5% for the other states.

Tobacco Control Progress in California and the Rest of the United States

Introduction

The history of tobacco control in California and the rest of the United States is integrally linked. The public health campaign to reduce the health consequences of smoking started at the federal level. However, California took this campaign to a new level when it established a relatively well-funded permanent state-wide tobacco control program with new excise-tax revenue from voter-approved Proposition 99 (Bal et al., 1990). These monies enabled California to properly implement federal initiatives, thus acting as a demonstration state for the rest of the nation.

The California program also generated its own initiatives, which quickly diffused to other states. One such initiative was a major campaign promoting local clean-air policies to protect nonsmokers from exposure to secondhand tobacco smoke. This campaign played an important role in awakening the California public to the issue of tobacco and its toll in both lives and dollars. Another initiative was the California Smokers' Helpline. This program approximately doubled the rate of successful smoking cessation (Zhu et al, 1996; 2002). By 2003, a total of 33 additional states were also providing such a service, and the American Cancer Society now operates a nationwide quit line.

Nationally, public health action to reduce tobacco use began in response to the 1964 Surgeon General's report that concluded smoking was causally associated with lung cancer (USDHHS, 1964). On the 25th anniversary of this pivotal report, another Surgeon General's report concluded that while much progress had been made, the US was still a long way from being a smoke-free society (USDHHS, 1989). Trends identified at the time suggested that if nothing happened to change things, adult smoking prevalence would be as high as 22% in the year 2000 (Pierce et al., 1989). To spur action on many levels, public health officials set the goal of an adult smoking prevalence rate of 15% by 2000 (USDHHS, 1990).

In the design of its program, California departed from tobacco control strategies of the past, which largely focused on the individual smoker, in favor of more population-based interventions focused on policy changes as recommended by the National Cancer Institute (Bal et al., 1990; NCI, 1991). Also focusing on changing policy, 17 other US states participated in the American Stop Smoking Intervention Study (ASSIST), funded by the National Cancer Institute in partnership with the American Cancer Society. The intervention phase of this program began in late 1993 and ran through late 1999 (Manley et al., 1997). In addition, the Centers for Disease Control and Prevention and the Robert Wood Johnson Foundation provided modest funding for similar tobacco control activities in many other states, including Initiatives to Mobilize for the Prevention and Control of Tobacco Use [IMPACT], SmokeLess States, and Tobacco-Free Kids. Also, many states

launched their own programs. In 2000, 15 states' programs were funded at 50% or more of the Centers for Disease Control recommended minimum level, and this increased to 19 states by the start of 2003, but dropped back to 13 states in 2004 (NCTFK, 2003).

Another major advance for tobacco control in the US was the federal Environmental Protection Agency's report that classified secondhand smoke as a Class A carcinogen (USEPA, 1992). A result of this report was passage of ordinances around the country restricting smoking in public places. Again, California took the lead with so many local laws that a state-wide Assembly Bill, AB-13,¹ banning smoking in all indoor work areas, was passed in 1994 to take effect as of January 1, 1995. The diffusion of such laws to other States has occurred but at a slower pace than other innovations. At the end of 2002, only four other states (Delaware, New York, Connecticut, and Maine) had comprehensive smoke-free workplace policies, but other states are in the process of considering such legislation.

A further federal level policy change was the Synar Amendment of 1992 that led to regulations in 1994 that required states to have and enforce youth access-to-tobacco laws in order to secure funds for drug abuse prevention (SAMHSA, 1996). The Amendment specifies that compliance checks should show that illegal sales of tobacco to youth do not exceed 20% within a reasonable period of time. California passed the Stop Tobacco Access to Kids Enforcement (STAKE) Act in 1994 to assure compliance with the federal initiative. From 1994 through 1997, illegal sales in California exceeded the 20% level, but lower rates have been observed since then. In 2002, the rate approached the 20% level, which led to additional focused program activities and legislation, and illegal sales fell to 12.2% in 2003 (CDHS, 2003).

Restrictions on tobacco advertising and promotions were another important tobacco control tool. These came about nationally because of the Master Settlement Agreement (MSA) of 1998, whereby the Attorneys General from 46 states negotiated with major US tobacco companies to recover health-care costs for smoking-related diseases (NAAG, 1998). The restrictions negotiated into the MSA were the result of research, some of which was based on findings from California. RJ Reynolds' cartoon character, Joe Camel, featured on billboards and in the print media, was documented to be effective in capturing the attention of children and youth (Fischer et al., 1991; Difranza et al., 1991; Pierce et al., 1991). Further, tobacco promotions such as "Camel Cash" introduced in 1991, and "Marlboro Miles" introduced in 1993 by Phillip Morris in response to RJ Reynolds' campaign, were influencing adolescents to smoke (Pierce et al., 1998). In the course of the MSA litigation and other states' litigation with the tobacco industry, incriminating internal industry documents became public, indicating that the industry had indeed marketed their products to underage youth (Perry, 1999; Cummings et al., 2002). As a result, California cities began to pass ordinances restricting advertising near schools. In 1997, two cities had such ordinances, and by 2001, 46 cities did (ANR, 2002). However, the federal Supreme Court ruled (in *Lorillard vs. Reilley*, 2002) against this practice, finding it in violation of the first amendment. Nevertheless, the MSA negotiated

¹ California Labor Code Section 6404.5

restrictions were able to ban billboard advertising altogether as well as eliminate cartoon characters from tobacco advertising. The MSA also placed restrictions on the distribution of tobacco promotional items.

The MSA established the American Legacy Foundation, which had as its mission the design and implementation of a national anti-tobacco media campaign aimed at preventing youth smoking. The first effective anti-tobacco media campaigns from 1967 to 1970 were instituted in relation to the “Fairness Doctrine,” when federal courts agreed that the public health community had the right to counter tobacco advertising on radio and television (Warner, 1977; USDHHS, 1989). Throughout the 1980s, the federal Office on Smoking and Health used public service requirements for television and radio stations to obtain free anti-tobacco advertising. As part of its Tobacco Control Program, California has had an ongoing multi-targeted mass-media campaign. Florida fielded a mass-media campaign aimed at youth, which was shown to be effective in reducing youth smoking (Bauer et al., 2000). The American Legacy Foundation’s “Truth” campaign, launched in early 2000, was modeled on the Florida campaign, with its hard-hitting ads aimed at educating youth about the deceptions of the tobacco industry.

Another consequence attributed to the MSA was a tobacco industry-led nationwide cigarette price increase by about \$0.70/pack in 1999. Also, in January 1999, a further \$0.50/pack excise tax increase took effect in California after voters passed Proposition 10 in November 1998. A total of 26 states, including California, have increased their excise taxes by at least this much since 1993 (Orzechowski & Walker, 2003).

From this history, California was both reacting to initiatives set at the national level such as the Environmental Protection Agency report, the Synar Amendment, and the MSA, and providing a model as to how to implement these initiatives in effective programs that have diffused to other states.

Section 1 of this chapter documents changes in several key indicators of tobacco control activity (cigarette price, indoor workplace smoking bans, and home smoking bans) in all US states. Section 2 looks at changes in per capita cigarette consumption both in California and the rest of the US. Section 3 compares changes in adult smoking prevalence in California with the rest of the nation, while Section 4 does the same for youth. For estimates of smoking prevalence from the California Tobacco Survey, see Chapter 2. Section 5 summarizes the results of the chapter. An appendix to this chapter presents some recent data from national surveys that allow comparison of California with the rest of the US; however, because of the short period covered and small sample sizes, trends are difficult to discern.

1. Tobacco Control Progress Nationwide

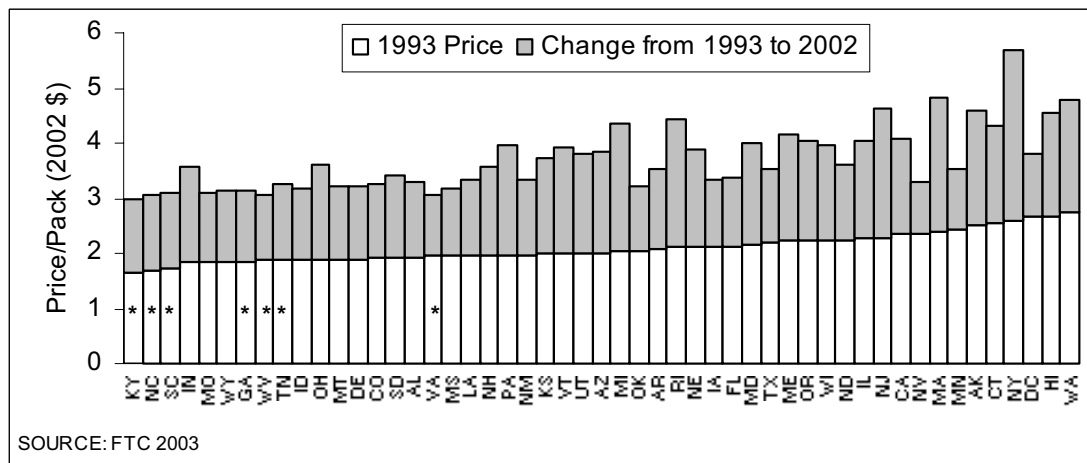
Following structural policy changes (legislative action), there may be a lag period before an impact on smoking prevalence and per capita cigarette consumption becomes apparent. However, in the interim, it should be possible to observe changes resulting from new policy initiatives. For instance, as states increase excise taxes, cigarette prices will

increase. Also, as clean-indoor air laws are adopted locally and by some states, a greater percentage of the population should report working in smoke-free workplaces. As people come to appreciate the need for and advantages of working in a smoke-free environment, they may be more willing to adopt home smoking bans. These three factors have been used previously to gauge state-specific tobacco control activity (Gilpin et al., 2000).

Cigarette Price

The average cigarette price in each state as of November 1 is reported to the US Federal Trade Commission each year (Orzechowski & Walker, 2003). **Figure 1.1** shows cigarette price changes in each state and the District of Columbia between 1993 and 2002.

Figure 1.1: Average Cigarette Prices (2002 \$) in 1993 and 2002 by State



The height of the lower portion of the bars shows the consumer-price-index adjusted cigarette price (2002 \$) in 1993. The total bar height shows the cigarette price for each state in 2002. The tobacco growing states of Virginia (VA), West Virginia (WV), Tennessee (TN), Kentucky (KY), North Carolina (NC), South Carolina (SC) and Georgia (GA) are identified in the figure with an asterisk. In 1993, cigarette prices ranged from a low of \$1.65/pack to a high of \$2.74/pack, a variation by a factor of 65.4%. Altogether, in 1993, 41 states had a lower average price than California, and nine states including Washington, DC had the same or higher average price. In 2002, the average price ranged from \$2.98/pack to \$5.68/pack. In California, cigarettes were \$4.08/pack. This range represents a factor difference of 90.6%.

Over half of US states have increased their cigarette excise taxes by at least \$0.50/pack since 1993.

From 1993 to 2002, 26 states, including California, implemented excise tax increases totaling at least \$0.50/pack (Orzechowski & Walker, 2003). In other states, much of the price increase was due to manufacturer price increases following the MSA. In 2002, 10 states had an average cigarette price higher than California's, and in 39 states and DC it was lower.

Smoke-free Workplaces

The Current Population Survey Tobacco Use Supplement (CPS-TUS) was fielded for 3 months (September, January, and May) in 1992-1993, 1995-1996, 1998-1999, and in June, November, and February of 2001-2002. It asked respondents about workplace smoking restrictions. First, it established that the respondent worked outside the home, was not self-employed, and worked in an indoor setting. Then it asked the following:

Does your place of work have an official policy that restricts smoking in any way?

If the answer was yes, respondents were then asked the following two questions:

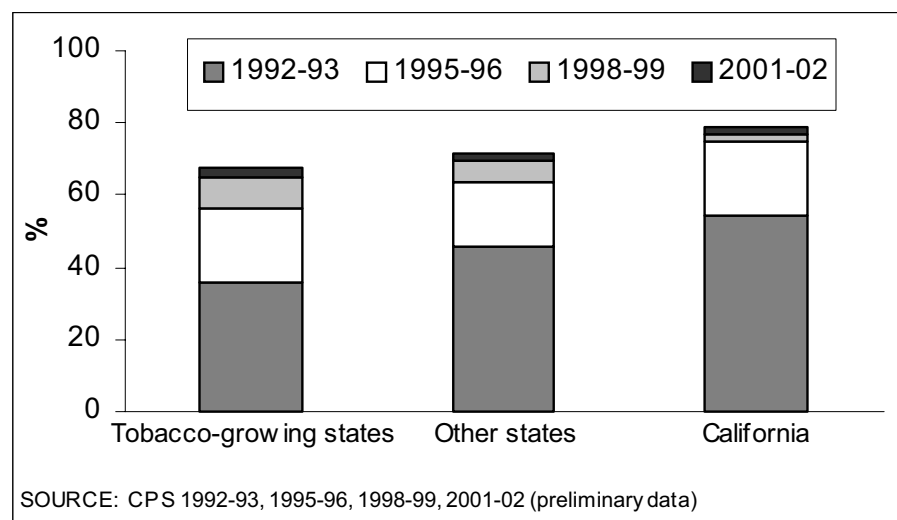
Which of these best describes your place of work's smoking policy for work areas?

Which of these best describes your place of work's smoking policy for indoor public or common areas such as lobbies, rest rooms, and lunchrooms?

Response choices for the above questions were as follows: not allowed in any, allowed in some areas, and allowed in all areas. Those giving the response "not allowed in any" to both questions were considered to have smoke-free workplaces.

The most recent CPS data were preliminary and provided for analysis of three groups of states: tobacco growing states, other states, and California. **Figure 1.2** shows the percentage of indoor workers reporting their workplaces to be smoke-free in each group of

Figure 1.2: Indoor Workers with Smoke-free Workplaces



states. The lower portion of the bars indicates the percentage in 1992-1993, and each increment shows the change between successive surveys with the top of the bar representing the percentage for each group in 2001-2002.

California's level in 1992-1993 was higher than the level for the groups of other US states, although there were two states (Utah and Washington), with levels slightly higher than California. AB-13 took effect in 1995, so the percentage of indoor workers reporting smoke-free workplaces increased markedly in California between 1992-1993 and 1996-1996. However, the level reported in the other groups of states also increased markedly during this period.

The increase in smoke-free workplaces following AB-13 in California was experienced in other states as well.

It is likely that the Environmental Protection Agency Report (USEPA, 1992) outlining the many dangers of secondhand smoke to nonsmokers played a role in encouraging local ordinances to restrict smoking. Also, as California accounts for about 10% of the US population, and many large nationwide corporations have facilities in California, the smoke-free policy required by law in California facilities may have become a corporate policy throughout the US.

Compared to California, the other groups of states, particularly the tobacco growing states, showed much larger increases in workers reporting smoke-free workplaces from 1995-1996 to 2001-2002. Some of this increase may be due to local laws, as only four states (Delaware, New York, Connecticut, and Maine) had comprehensive smoke-free workplace policies by 2002. However, it is possible that much of the increase in other states might be because of worker demand, as they observe family members and friends enjoying smoke-free corporate workplaces. Between 1992-1993 and 2001-2002, the percentage of indoor workers reporting a smoke-free workplace increased by a factor of 45.5% in California, by a factor of 87.5% in tobacco growing states, and by a factor of 56.9% in the other states.

It should be noted that the question used in the CPS-TUS differs from the one used in the California Tobacco Survey (see Chapter 6). Some Californians who responded to the CPS-TUS may have answered "no" to the question about their workplace having a policy, because they considered the policy to be a state policy and not a policy specific to their workplace, and therefore not have answered the questions about the types of restrictions within their workplaces.

Smoke-free Homes

The CPS-TUS also asked all respondents about smoking restrictions in their homes with the question:

Which statement best describes the rules about smoking in your home?

No one is allowed to smoke anywhere,

smoking is allowed in some places or at some times, or

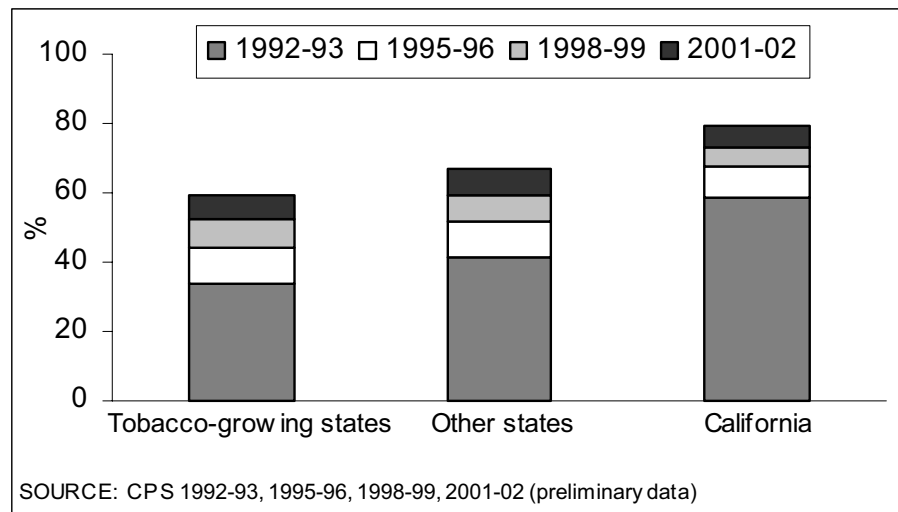
smoking is permitted anywhere.

Those giving the first response were considered to have smoke-free homes.

The gap in report of smoke-free homes between California and other states is closing fast.

Figure 1.3 shows, in a fashion similar to the figure for smoke-free workplaces, the changes between 1992-1993 and 2001-2002 in the percentages of respondents with smoke-free homes in each group of states. In 1992-1993, only Utah had a higher percentage of respondents with smoke-free homes than California. In 1992-1993, the tobacco growing states' level was lower than California's by a factor of 42.7%, and the level for the other states was lower by a factor of 29.4%. However, these groups of states are rapidly catching up to California. In 2002, the level for the tobacco growing states was only lower than for California by a factor of 25.0%, and the other states were only lower by a factor of 15.5%. Looking at these changes in another way, the increase for California over this period was by a factor of 35.0%, while tobacco-growing states increased by a factor of 76.5%, and the other states increased by a factor of 61.4%.

Figure 1.3: Smoke-free Homes



Unlike cigarette prices that include taxes enacted by law or workplace smoking bans imposed by an employer, home smoking bans require voluntary cooperation by household smokers. Thus, the diffusion of smoke-free homes throughout the nation represents a major change in societal acceptance of the harm of secondhand smoke, and perhaps anti-tobacco attitudes in general (see Chapter 6). These results clearly indicate that the rest of the nation has made major changes with respect to tobacco control.

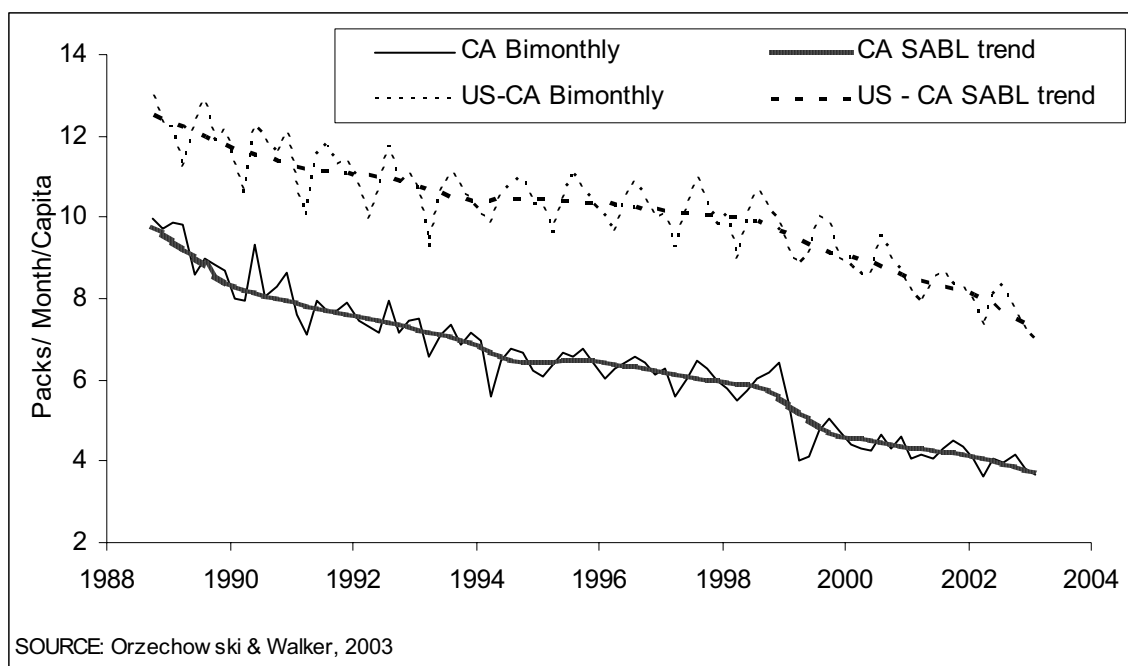
2. Per Capita Cigarette Consumption

This section examines trends in per capita cigarette consumption from national sales data and compares these data for California to the rest of the US. Until late 1998 when it was disbanded, the Tobacco Institute compiled cigarette sales data on a monthly basis in each state for federal tax reporting purposes (Tobacco Institute, 1997). Since then, the same group responsible for compiling the earlier data has been producing it through the economic consulting firm of Orzechowski and Walker, with support from the tobacco industry (Orzechowski & Walker, 2003).

As these data are from wholesale warehouse removals, variation from one month to the next is considerable; in particular, the levels of removals in the last month of any quarter is strongly correlated with the removals in the first month of the next quarter. This variation has little to do with actual consumption and likely reflects business practice. To partially remove this source of variation, data were combined into 2-month intervals with December/January, February/March, etc., treated as single intervals. To convert the sales data to per capita cigarette consumption, the mean number of packs removed from warehouses in each interval was divided by the total population of adults aged 18 years and older in California (or the rest of the US) at that time. Annual values are interpolated to obtain the populations for each 2-month interval. Finally, to better visualize the trends in per capita consumption, a statistical procedure was employed to smooth the data. These methods are described in more detail in the technical documentation (Gilpin et al., 2004).

Figure 1.4 shows the trends in per capita cigarette consumption from August/September 1988, just before voters passed the excise tax increase that funded the California Tobacco Control Program to December/January (2002/2003).

Per capita cigarette consumption was lower in CA than in the rest of the US throughout this period. At the first interval plotted, August/September 1988, per capita cigarette consumption in California was 9.8 packs/month compared to 12.5 packs/month in the rest of the US, so that Californians' consumption was 78.4% of that of the rest of the US. The decline due to the January 1989 Proposition 99 \$0.25/pack tax increase is clearly visible in the plot, and as of August/September of 1989, California's per capita consumption was 72.4% of that in the rest of the US. The gap widened further, so that just before the Proposition 10 excise tax increase took effect, August/September of 1998, California's consumption was 58.7% that of the rest of the US.

Figure 1.4: Per Capita Cigarette Consumption in California and the Rest of the US

From just before the California Tobacco Control Program began (in 1988) to 2002, per capita cigarette consumption declined by a factor of 60%, compared to a factor of 40% for the rest of the US.

The nationwide price increase resulting from the increase in cigarette prices following the MSA contributed to further declines in per capita consumption, again clearly visible in the figure. By August/September of 2002, California's per capita cigarette consumption was 3.9 packs/month compared to 7.5 packs/month in the rest of the US, so that California's consumption was only 51.4% of that for the rest of the US. The decline in California between August/September of 1988 and August/September of 2002 was by a factor of 60.5% compared to 40.1% for the rest of the US.

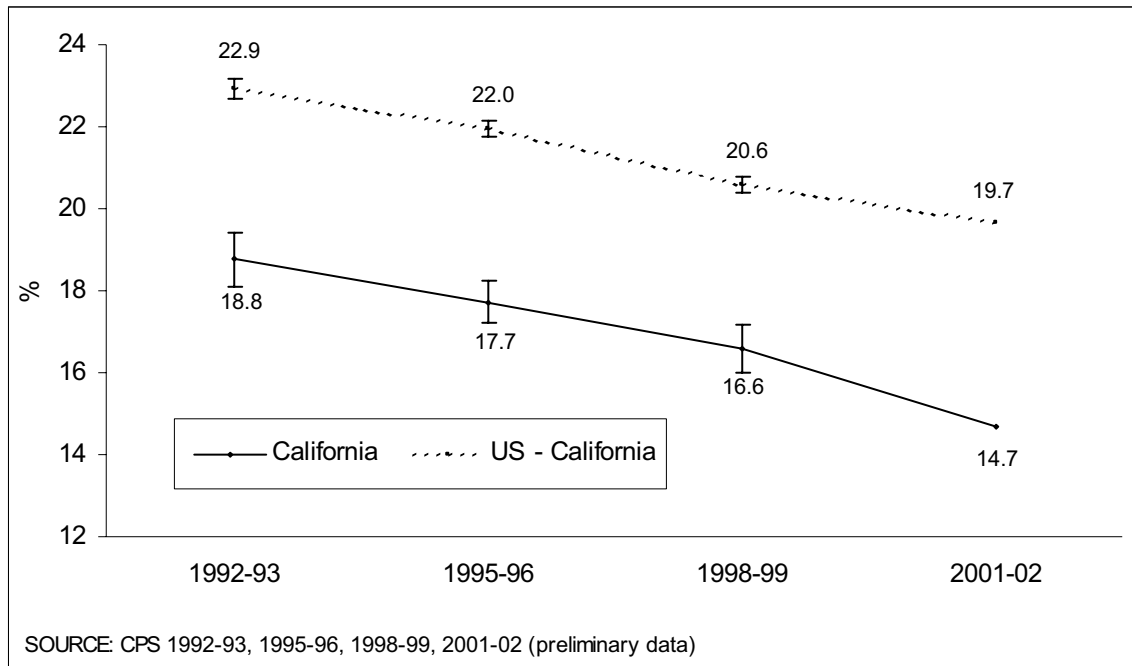
3. Adult Smoking Prevalence

This chapter will compare smoking prevalence in California to that in the rest of the US using estimates from the Current Population Survey Tobacco Use Supplements (CPS-TUS). For estimates of smoking prevalence from the California Tobacco Survey, see Chapter 2. Data from the CPS-TUS were presented earlier in this chapter, and the technical documentation includes more details about the survey methods (Gilpin et al., 2004). The preliminary data for the CPS-TUS estimate for 2001-2002 did not include the survey month, so composite estimates are shown. Data for both self and proxy reports of smoking status were standardized to 2002 California population totals, so that differences due to the demographic distribution of people in California versus the rest of the US or within California or within the rest of the US over time do not confound interpretation of

the results. The technical documentation (Gilpin et al., 2004) describes this standardization procedure in detail.

Figure 1.5 shows the CPS-TUS adult (18+ years) smoking prevalence estimates for California and for the rest of the US from each survey.

Figure 1.5: Smoking Prevalence in Adults Aged 18+ Years



From 1993 to 2002, adult smoking prevalence declined by a factor of 22% in California, compared to 14% in the rest of the US.

In each survey year, adult smoking prevalence was significantly lower in California than in the rest of the US, and significant declines were observed over the entire period in both California and the rest of the US. Before 2001-2002, smoking prevalence in California was just over 80% of that observed in the rest of the US, but in 2001-2002, it was 75% as high. This widening of the gap was due to California's decline from 16.6% in 1998-1999 to 14.7% in 2001-2002. The data for 2001-2002 are preliminary, and the information needed to compute 95% confidence intervals was not provided. However, it would be anticipated that the confidence intervals in 2001-2002 would be similar to those in 1998-1999, since the sample size was only slightly smaller (see Chapter 2).

Thus, it is likely that the recent decline in California is significant, and that the smaller decline in the rest of the US is also significant, because of the larger sample size.

Between 1992-1993 and 2001-2002, prevalence declined by a factor of 21.8% in California compared to a factor of 14.0% in the rest of the US.

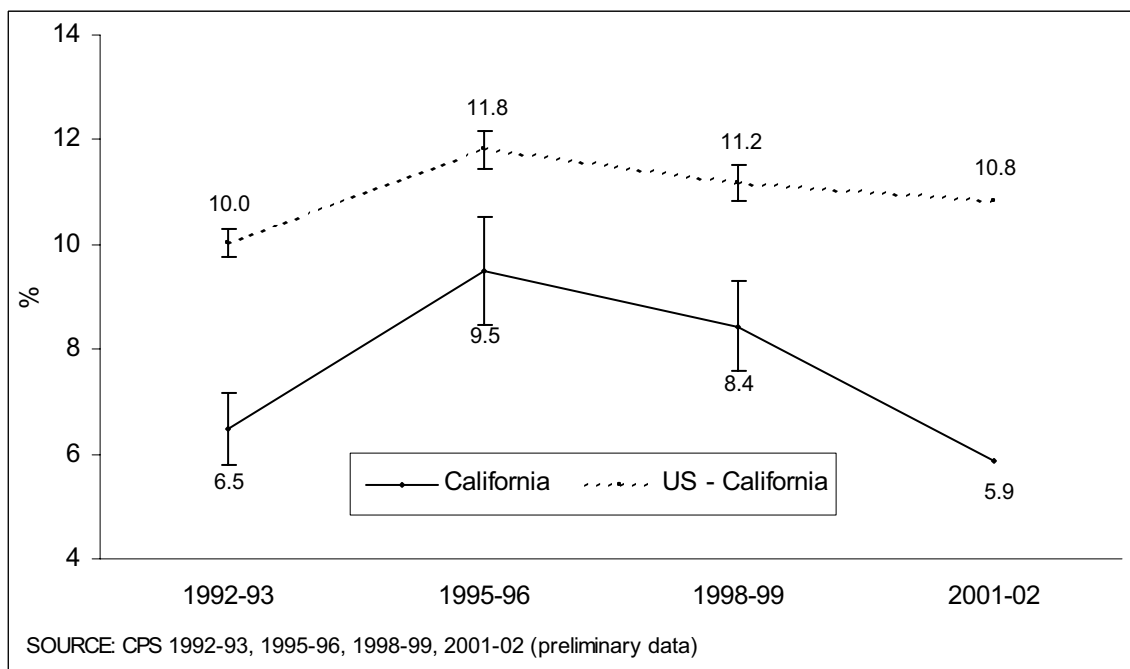
4. Youth Smoking Prevalence

In contrast to the rest of the US, youth smoking prevalence has shown a major decline in California, by a factor of 38% since 1996.

The CPS-TUS interviewed persons aged 15 years and older, and to compare youth smoking prevalence for California versus the rest of the US, data from 15- to 20-year-olds are considered. **Figure 1.6** shows the results for the same prevalence measure as reported in the last section for adults. Prevalence among California youth is much lower than for similarly aged youth in the rest of the US. Further, between 1992-1993 and 2000-2001, prevalence among youth in the rest of the US increased slightly by 1995-1996 but then remained constant thereafter. In California, on the other hand, prevalence increased markedly by 1995-1996, declined by 1998-1999, and then declined again by 2001-2002. The factor decline from the 1995-1996 peak to 2001-2002 was 37.9%. These trends for Californian are consistent with results presented in

Chapters 3 and 7 from the California Tobacco Surveys for young adults and adolescents. In 2002, youth smoking prevalence was lower by a factor of 45.4% than in the rest of the US.

Figure 1.6: Smoking Prevalence in Youth Aged 15-20 Years



5. Summary

California and the rest of the US have made considerable progress in tobacco control. As the vanguard state for tobacco control in response to the national public health agenda, California's effective strategies have diffused throughout the nation, and the gap that existed early in the 1990s had narrowed considerably by 2002. Even tobacco growing states have made progress.

This chapter considered progress in three specific areas: cigarette price, smoke-free workplaces, and smoke-free homes. The data presented in this chapter, comparing tobacco control progress in California and the rest of the US, were from the national Current Population Survey Tobacco Use Supplements (CPS-TUS). The authors would like to acknowledge Anne Hartman from the Division of Cancer Control and Population Science at the National Cancer Institute for providing preliminary 2001/2002 CPS-TUS data for inclusion in this report. Data on cigarette price were from the consulting firm of Orzechowski & Walker.

- € Since 1993, 26 states, including California, have raised excise taxes on cigarettes by \$0.50/pack or more. Further, the increase in cigarette prices attributed to the MSA means that cigarettes cost more in all states, regardless of whether they had an excise tax increase. In 2002, average price per pack ranged from \$2.98/pack to \$5.68/pack. In California, cigarettes cost \$4.08/pack. Nine states had a higher price than California in 1993 and 10 did in 2002.
- € The EPA report on the dangers of secondhand smoke and the plethora of local ordinances in California led to a law, AB-13, which banned smoking in all California indoor work areas in 1995 (except bars or clubs and gaming establishments). These events were associated with a marked increase in indoor workers reporting a smoke-free workplace both in California and the rest of the US. It is likely that national corporations extended their smoke-free policies nationwide after the need to conform to California law. Since 1996, other states, particularly the tobacco growing states with the farthest to go, have shown larger increases than observed for California. Between 1992-1993 and 2001-2002, the percentage of indoor workers reporting a smoke-free workplace increased by a factor of 45.5% in California, by a factor of 87.5% in tobacco growing states, and by a factor of 56.9% in the other states.
- € Adoption of a smoke-free home signals both an understanding of the dangers of secondhand smoke and anti-tobacco social norms. In 1993, the percentage of respondents with smoke-free homes in tobacco growing states was lower by a factor of 42.7%; and in the other states by a factor of 29.4% compared to California. However, by 2002, this factor was only 25.0% for the tobacco growing states and 15.5% for the other states, again indicating that the gap between California and other states is closing.

The above findings highlight the tobacco control progress the rest of the US has made in recent years. Therefore, comparison of California with the rest of the US is now less relevant as an evaluation tool than early in the 1990s, when tobacco control was largely confined to California. Nevertheless, comparisons for the main smoking behavior outcomes (prevalence and per capita consumption) indicate that California has made more progress to date than the rest of the US.

- € Per capita cigarette consumption declined by a factor of 60.5% in California compared to a factor of 40.1% in the rest of the US, from just before the start of California's tobacco control program through 2002.

- € Adult (18+ years) smoking prevalence declined by a factor of 21.8% in California compared to 14.0% in the rest of the US, from 1992-1993 through 2001-2002.
- € Youth (15-20 years) smoking prevalence has not yet declined in the rest of the US, but it has in California by a factor of 37.9% by 2001-2002 from its peak in 1995-1996.

While the level of decline in smoking behavior in California was greater than in the rest of the US up to 2002, the nation as a whole appears to be experiencing considerable tobacco control progress. In the future, the rest of the US may show a higher level of progress than California, which has already passed through this familiar territory on the way to becoming a smoke-free society.

Chapter

1

APPENDIX

Tobacco Control Progress in California and the Rest of the United States

This appendix features recent results from several national surveys with a design that allowed prevalence estimates for California to be determined separately from estimates for people in the rest of the US.

The household-based survey sponsored by the Office of Applied Studies, National Household Survey on Drug Abuse (NHSDA), Substance Abuse and Mental Health Services Administration included persons in sampled households aged 12 years and older. Thus, smoking prevalence estimates are available for both adolescents and adults. Survey results were available from 1999, 2000, and 2001. These surveys are face-to-face interviews conducted with the respondents in their homes. The authors wish to acknowledge the cooperation of Joseph Gfroerer of NHSDA in providing these estimates.

The National Youth Tobacco Survey (NYTS) is a school-based survey that sampled classes of 6th through 12th graders in 1999, 2000, and 2002 from a stratified random sample of schools from throughout the nation. In 1999, the NYTS was conducted in the fall, but in 2000 and 2001, it took place in the spring. Thus, the interval between the 1999 and 2000 survey was shorter, and students were 6 months or so older than the group surveyed in the fall. Since smoking increases with age, the estimates for 2000 are higher than if a new class had been surveyed in the fall of 2000. The authors wish to acknowledge the cooperation of Mathew Farrelly and Ghada Al Homsy of Research Triangle Institute in providing these estimates.

Depending on the survey setting, the estimates obtained are different, particularly for adolescents (Kann et al., 2003). School settings produce much higher prevalence estimates than home-based surveys. A recent comparison showed very similar estimates for in-home face-to-face interviews and telephone surveys of adolescents (Biglan et al., 2004). For adults, sensitive behaviors such as alcohol abuse, illegal drug use and risky sexual activity have higher prevalence estimates from face-to-face interviews than from telephone surveys (Gfroerer & Hughes; 1991). However, little impact of this mode effect has been noted for adult tobacco use (McAuliffe et al., 1998). Nevertheless, because of the known mode differences for adolescents and potential mode effects for adults, data from the different surveys should not be compared.

1. Adult Smoking Prevalence

Table A.1.1 shows three estimates of adult (18+ years) smoking behavior for California and for the rest of the US from the National Household Survey on Drug Abuse. These are the percent of adults who have smoked at least 100 cigarettes in their lifetime and who

now smoke every day (daily smokers) or some days (non-daily) smokers. The first column is the sum of the other two.

Except for 2000, California showed a significantly lower overall estimate of current smoking prevalence than the rest of the US. The estimates for daily smoking prevalence were also significantly lower, but the rates for non-daily smoking were similar and not statistically different. The estimates for each year in the above table for California are within the margin of error and are not statistically different from one another, so it is not possible to discern a trend. For the rest of the US, the differences are also not different from one another over the relatively short time interval between 1999 and 2001.

| Table A.1.1 Comparison of California and the Rest of the US for Measures of Adult (18+ Years) Smoking Behavior | | | |
|---|---|---|---|
| | Current Smoking Prevalence % | Daily Smoking Prevalence % | Non-daily Smoking Prevalence % |
| California | | | |
| 1999 | 19.8 (±2.5) | 14.5 (±2.3) | 5.2 (±1.2) |
| 2000 | 23.2 (±2.9) | 16.8 (±2.6) | 6.4 (±1.7) |
| 2001 | 20.5 (±3.2) | 14.8 (±2.8) | 5.7 (±1.4) |
| Rest of US | | | |
| 1999 | 26.3 (±0.8) | 21.1 (±0.8) | 5.1 (±0.4) |
| 2000 | 25.0 (±0.7) | 20.0 (±0.7) | 4.9 (±0.4) |
| 2001 | 25.3 (±0.7) | 20.2 (±0.6) | 5.1 (±0.3) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: NHSDA 1999, 2000, 2001

2. Adolescent Smoking Prevalence

The comparison of adolescent smoking behavior measures is shown for two age groups: 12-14 and 15-17 years of age, with measures pertinent to each age group.

For 12- to 14-year-olds, **Table A.1.2** shows the percentage that were committed never smokers (see Chapter 7), the percentage that had ever smoked, and the percentage that had smoked on at least one day in the past 30 (current smokers).

In 1999 and 2000, significantly more young

California adolescents were committed never smokers than adolescents in the rest of the US, but the percentages for 2001 were not significantly different. In all years,

| Table A.1.2 Measures of Adolescent Smoking Behavior Among 12- to 14-year-olds for California and the Rest of the US | | | |
|--|--|------------------------------|---------------------------------|
| | Committed Never Smokers % | Ever Smoker % | Current Smoker % |
| California | | | |
| 1999 | 65.0 (±3.2) | 15.8 (±4.3) | 2.4 (±0.9) |
| 2000 | 67.6 (±3.4) | 13.9 (±2.7) | 2.7 (±1.0) |
| 2001 | 68.1 (±4.1) | 14.0 (±3.4) | 2.9 (±1.6) |
| Rest of US | | | |
| 1999 | 56.1 (±1.3) | 24.1 (±1.0) | 7.2 (±0.6) |
| 2000 | 61.0 (±1.2) | 20.5 (±1.0) | 5.6 (±0.5) |
| 2001 | 63.2 (±1.2) | 20.0 (±1.0) | 5.1 (±0.6) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: NHSDA 1999, 2000, 2001

significantly fewer California adolescents had ever experimented with cigarettes than young adolescents in the rest of the US. Further, significantly fewer young California adolescents had smoked in the past 30 days (current smokers) than in the rest of the US. While the small samples sizes for California make it impossible to discern trends, the percentage of committed never smokers in the rest of the US was significantly higher in 2001 than in 1999. Also, in the rest of the US, significantly fewer young adolescents had ever smoked in 2000 and 2001 compared to 1999. Finally, current prevalence (in last 30 days) declined significantly between 1999 and 2000.

Table A.1.3 shows an additional smoking behavior measure for 15- to 17-year-olds, the percentage who reported having smoked at least 100 cigarettes in their lifetime (established smokers).

Fewer 15- to 17-year-olds were still committed never smokers compared to 12- to 14-year-olds.

Also, as to be

expected, more older adolescents reported ever experimenting and more were current smokers than among younger adolescents. Again, California adolescents in this age group showed higher percentages of committed never smokers in 1999 and 2000 than in the rest of the US, but the difference was not significant for 2001. In all years, significantly fewer older California adolescents reported ever smoking than older adolescents in the rest of the US, significantly fewer were established smokers, and significantly fewer were current smokers. Again, because of small sample sizes, trends cannot be discerned for California. In the rest of the US, there were encouraging but non-significant changes. If these trends continue, future surveys will show significant changes in these measures of adolescent smoking behavior. There were major declines among the younger adolescents and as they age, their lower rates of smoking should become apparent in the older adolescent group, unless initiation is being delayed until the later adolescent or even young adult years.

| Table A.1.3 Measures of Adolescent Smoking Behavior Among 15- to 17-Year-Olds for California and the Rest of the US | | | | |
|--|--------------------------------|---------------------|----------------------------|------------------------|
| | Committed Never Smoker % | Ever Smoker % | Established Smoker % | Current Smoker % |
| California | | | | |
| 1999 | 40.1 (03.1) | 43.2 (02.6) | 11.6 (02.0) | 15.4 (02.2) |
| 2000 | 42.3 (03.6) | 42.2 (03.8) | 9.9 (02.3) | 14.5 (02.5) |
| 2001 | 42.8 (03.3) | 39.7 (02.3) | 9.4 (02.4) | 13.3 (02.9) |
| Rest of US | | | | |
| 1999 | 35.4 (01.2) | 52.2 (01.2) | 18.7 (01.0) | 24.3 (01.1) |
| 2000 | 36.5 (01.1) | 50.9 (01.2) | 18.2 (01.9) | 22.9 (01.0) |
| 2001 | 38.2 (01.3) | 49.1 (01.0) | 17.2 (01.0) | 22.1 (01.1) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: NHSDA 1999, 2000, 2001

The prevalence of the various measures of adolescent smoking behavior from the NYTS are presented in **Table A.1.4**. Because of the grade level sampling, the data were not split into age groups.

| Table A.1.4 Measures of Adolescent Smoking Behavior Among 6th to 12th Graders for California and the Rest of the US | | | | |
|--|---|------------------------------|-------------------------------------|---------------------------------|
| | Committed Never Smoker % | Ever Smoker % | Established Smoker % | Current Smoker % |
| California | | | | |
| Fall 1999 | 39.8 (∂2.7) | 41.3 (∂7.4) | 7.6 (∂2.8) | 14.0 (∂3.5) |
| Spring 2000 | 32.1 (∂2.3) | 44.7 (∂3.7) | 7.7 (∂2.7) | 14.6 (∂3.0) |
| Spring 2001 | 42.4 (∂2.3) | 35.3 (∂4.6) | 4.6 (∂1.2) | 11.0 (∂1.9) |
| Rest of US | | | | |
| Fall 1999 | 30.2 (∂1.5) | 48.4 (∂4.1) | 12.2 (∂2.0) | 20.3 (∂2.5) |
| Spring 2000 | 26.4 (∂1.2) | 52.1 (∂2.3) | 13.7 (∂1.3) | 20.9 (∂1.6) |
| Spring 2001 | 32.4 (∂1.4) | 47.1 (∂2.4) | 11.1 (∂2.4) | 18.5 (∂1.4) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: NYTS 1999, 2000, 2001

The results from the NYTS also document a higher percentage of committed never smokers among California adolescents than among adolescents in the rest of the US. In 1999 and 2000, the percentages who had ever smoked were not statistically different between California and the rest of the US, but by 2001, the percentage was significantly lower for California. Current smoking prevalence (in last 30 days) was significantly lower in California at all time points. The percentage of California adolescents who were established smokers was significantly lower in 2000 and 2001.

Because the 1999 survey was conducted in the fall, to discern trends, only the difference between 2000 and 2001 should be considered. In both California and the rest of the US, the percentages of committed never smokers significantly increased and the percentages of ever smokers significantly declined. However, the declines seen for established smoking and for current smoking were not significant. These differences may become significant in future years as the younger adolescents with less smoking experience get older, assuming that there is no delayed initiation.

Glossary

Adults

Current smoker – has smoked at least 100 cigarettes in his or her lifetime and smokes now either everyday or some days.

Daily smoker – a current smoker who has smoked on every day of the past month.

Non-daily smoker – a current smoker who says he or she now smokes some days.

Adolescents

Committed never smoker – a *never smoker* who answers definitely not in answer to three question: trying a cigarette soon, accepting a cigarette if offered by a best friend, and likelihood of smoking in the next year.

Current smoker – has smoked a cigarette on at least one day in the past month.

Established smoker – has smoked at least 100 cigarettes in his or her lifetime.

Ever smoker – has smoked a cigarette (includes puffers for NHSDA and NYTS).

Never smoker – has never smoked or even puffed on a cigarette.

References

- Americans for Nonsmokers' Rights (ANR). *Americans for Nonsmokers' Rights Database*. February 5, **2002**.
- Bal DG, Kizer KW, Felton PG, Mozar HN, Niemeyer D. Reducing tobacco consumption in California. Development of a statewide anti-tobacco use campaign. *JAMA*. **1990**;264:1570-1574.
- Bauer UE, Johnson TM, Hopkins RS, Brooks RG. Changes in youth cigarette use and intentions following implementation of a tobacco control program. Findings from the Florida Youth Tobacco Survey, 1998-2000. *JAMA*. **2000**;284:723-728.
- Biglan M, Gilpin EA, Rohrbach LA, Pierce JP. Is there a simple correction factor for comparing adolescent tobacco-use estimates from school- and home-based surveys? *Nic Tob Res*. (in press, 2004).
- California Department of Health Services (CDHS). Presentation to Evaluation Task Force, October 9, **2003**.
- Cummings KM, Morley CP, Horan JK, Steger C, Leavell NR. Marketing to America's youth: evidence from corporate documents. *Tob Control*. **2002**;11(Suppl 1):I5-I17.
- Difranza JR, Richards JW, Paulman PM, Wolf-Gillespie N, Fletcher C, Jaffe RD, Murray D. RJR Nabisco's cartoon camel promotes camel cigarettes to children. *JAMA*. **1991**;266:3149-3153.
- Fischer PM, Schwartz MP, Richards JW, Goldstein AO, Rojas TH. Brand recognition by children aged 3 to 6 years. Mickey Mouse and Old Joe the Camel. *JAMA*. **1991**;266:3145-3148.
- Gfroerer JC, Hughes AL. The feasibility of collecting drug abuse data by telephone. *Pub Health Rep*. **1991**;106:384-393.
- Gilpin EA, Stillman FA, Hartman AM, Gibson JT, Pierce JP. An index for state tobacco control initial outcomes. *Am J Epidemiol*. **2000**;152:727-737.
- Gilpin EA, White MM, Berry CC. *Technical Report on Analytic Methods and Approaches Used in the 2002 California Tobacco Surveys Analysis. Vol. 3. Methods Used for Final Report: Tobacco Control Successes in California: A Focus on Young People*. La Jolla, CA: University of California, San Diego; **2004**.

- Kann L, Brener ND, Warren CW, Collins JL, Giovino GA. An assessment of the effect of data collection setting on the prevalence of health-risk behaviors among adolescents. *J Adolesc Health*. **2003**;31:327-335.
- Manley M, Lynn W, Epps RP, Grande D, Glynn T, Shopland D. The American Stop Smoking Intervention Study for cancer prevention: an overview. *Tob Control*. **1997**;6(Supplement 2):S5-S11.
- McAuliffe WE, Geller S, LaBrie RA, Paletz SBG, Fournier EA. Are telephone surveys suitable for studying substance abuse? Cost, administration, coverage, and response rate issues. *J Drug Issues*. **1998**;28:455-582.
- National Association of Attorneys General (NAAG). *Tobacco Settlement Summary*; **1998**. (<http://www.naag.org/glance.htm>).
- National Cancer Institute (NCI). *Strategies to Control Tobacco Use in the United States: a Blueprint for Public Health Action in the 1990s*. Bethesda, MD: National Institutes of Health; **1991** (Pub. No. (NCI)92-3316).
- National Center for Tobacco-Free Kids (NCTFK). *Shows Us the Money: An Update on the State's Allocation of the Tobacco Settlement Dollars*; January **2003**.
- Orzechowski & Walker. *The Tax Burden on Tobacco. Historical Compilation*. Vol. 37, 2002. Arlington, VA: Orzechowski & Walker; **2003**.
- Perry CL. The tobacco industry and underage youth smoking –Tobacco industry documents from the Minnesota litigation. *Arch Pediatr Adolesc Med*. **1999**;153:935-941,
- Pierce JP, Choi WS, Gilpin EA, Farkas AJ, Berry CC. Tobacco industry promotion of cigarettes and adolescent smoking. *JAMA*. **1998**;279:511-515.
- Pierce JP, Fiore MC, Novotny TE, Hatziaandreu E, Davis R. Trends in cigarette smoking in the United States: Projections to the year 2000. *JAMA*. **1989**;261:61-65.
- Pierce JP, Gilpin EA, Burns DM, Whalen E, Rosbrook B, Shopland D, Johnson M. Does tobacco advertising target young people to start smoking? Evidence from California. *JAMA*. **1991**;266, 3154-3158.
- Rapaport, L Cigarette sales to teens fall: The state's annual sting operation aimed at retailers shows a significant decline, the first in four years. *Sacramento Bee*, Fri, Aug. 1, **2003**.
- Substance Abuse and Mental Health Services Administration (SAMHSA). Tobacco regulation for substance abuse prevention and treatment block grants: final rule. *Fed Regist*. **1996**;61(13):1492-509.

- The Tobacco Institute. *The Tax Burden on Tobacco. Vol. 32, 1997. Monthly State Cigarette Tax Reports.* 1878 I Street, N.S. Washington, DC 20006; **1997**.
- US Department of Health and Human Services (USDHHS). *Healthy People 2000. National Health Promotion and Disease Prevention Objectives.* Washington, DC: US Department of Health and Human Services, Public Health Service, **1990**.
- US Department of Health and Human Services (USDHHS). *Reducing the Health Consequences of Smoking: 25 Years of Progress. A Report of the Surgeon General.* USDHHS, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.; **1989**. (DHHS Pub. No. (CDC) 89-8411)
- US Department of Health and Human Services (USDHHS). *Smoking and Health: Report of the Advisor Committee to the Surgeon General of the Public Health Service.* Washington, DC: US Government Printing Office; **1964**. (PHS Pub No 1103)
- US Environmental Protection Agency (USEPA). *Respiratory Health Effects of Passive Smoking: Lung Cancer and Other Disorders.* Washington, DC: Office of Research and Development and Office of Air and Radiation; **1992** (Pub. No. EPA/600/6-90-006F)
- Warner KE. The effects of the anti-smoking campaign on cigarette consumption. *Am J Public Health.* **1977**;67:645-650.
- Zhu SH, Anderson CM, Tedeschi GJ, Rosbrook B, Johnson CE, Byrd M, Guiterrez-Terrell E. Evidence of real-world effectiveness of a telephone quitline for smokers. *NEJM.* **2002**;347:1106-1109.
- Zhu SH, Stretch V, Balabanis M, Rosbrook B, Sadler G, Pierce JP. Telephone counseling for smoking cessation: Effects of single-session and multiple-session interventions. *J Consult Clin Psychol.* **1996**;64:202-211.

TOBACCO CONTROL SUCCESSES IN CALIFORNIA:
A FOCUS ON YOUNG PEOPLE

Chapter 2

Trends in Tobacco Use in California

| | |
|--|-------------|
| KEY FINDINGS | 2-2 |
| Introduction..... | 2-3 |
| 1. Current Smoking Prevalence Among Adults..... | 2-4 |
| 2. Current Smoking Prevalence for Demographic Subgroups of the Population..... | 2-6 |
| Gender..... | 2-6 |
| Age | 2-7 |
| Race/Ethnicity..... | 2-8 |
| Education..... | 2-9 |
| 3. Current Smoking Prevalence Among Adults by Region..... | 2-10 |
| 4. What Contributed to the Decline in Smoking? | 2-12 |
| Is There Evidence of Under-reporting? | 2-13 |
| Are Smokers Who Have Not Quit More Nicotine Dependent?..... | 2-14 |
| 5. Adult Use of Other Tobacco Products | 2-16 |
| 6. Adolescent Smoking Prevalence..... | 2-18 |
| 7. Adolescent Smoking Prevalence by Region | 2-20 |
| 8. Adolescent Use of Other Tobacco Products | 2-21 |
| 9. Summary | 2-23 |
| APPENDIX | 2-25 |
| 1. Standardized Adult Smoking Prevalence for Demographic Groups..... | 2-25 |
| 2. Demographic Comparison of Groups of Current Smokers in 2002 | 2-28 |
| 3. Adult Use of Other Tobacco Products-Demographics | 2-29 |
| 4. Adolescent Use of Other Tobacco Products-Demographics..... | 2-30 |
| GLOSSARY | 2-34 |
| REFERENCES | 2-35 |

Chapter

2

KEY FINDINGS

Trends in Tobacco Use in California

- 1) Smoking prevalence has declined substantially since 1990, reaching a low of 15.4% among adults in 2002.** Standardized estimates (to 2002 population totals) indicate that adult smoking prevalence declined by a factor of 21% between 1990 and 2002, and by a factor of 10% between 1999 and 2002.
- 2) Prevalence among women was lower than among men, and women showed double the decline between 1999 and 2002** (14% factor decrease) compared to men (7% factor decrease). Young women aged 18 to 24 years also showed double the decline between 1999 and 2002 (18% factor decline) compared to young men (9% factor decline). The recent declines were significant for women, but not for men.
- 3) The recent decline in smoking prevalence appeared to be mostly from increased smoking cessation by older adults.** Further, cessation should continue at comparable rates, as suggested by the lack of significant evidence that the pool of remaining smokers is markedly more nicotine dependent than smokers earlier in the decade. Finally, additional declines in smoking prevalence will be the result of new cohorts of young adults with much lower rates of ever smoking.
- 4) Current prevalence of cigar use among California adult males in 2002 was 7.1%.** This rate was higher than in 1990 (by a factor of 48%), but lower by a factor of 19.3% from its peak in 1996 (8.8%).
- 5) Smoking prevalence among adolescents has declined substantially since 1996, reaching 5.0% in 2002.** From its peak in 1996, smoking in 12- to 17-year olds (any smoking in last 30 days) declined by a factor of 33% by 1999 and by a factor of 56% by 2002.
- 6) Experimentation with other tobacco products among adolescents has also declined significantly between 1999 and 2002.** In 2002, 3.9% of adolescent boys reported experimenting with smokeless tobacco products, 8.8% of all adolescents had experimented with cigars, and 3.3% had experimented with bidis. Corresponding numbers for 1999 were 5.2% for smokeless, 11.9% for cigars, and 7.0% for bidis.

Trends in Tobacco Use in California

Introduction

To eventually reduce morbidity and mortality from smoking-related diseases, the most important goal of the California Tobacco Control Program is to lower smoking prevalence. This chapter examines trends in current smoking prevalence among California adults and adolescents. It also presents data related to the use of other tobacco products by adults and adolescents.

All the data presented in this chapter are from the California Tobacco Surveys (CTS). The CTS are random-digit-dialed telephone surveys. When a selected telephone number is answered, the interviewer establishes that the number is for a residence and asks to speak to an available adult (18+ years of age) about the household. The interviewer then asks the adult: (1) who lives in the household, and (2) whether or not each resident is a smoker. Depending on funding and survey design for the various survey years, between 14,736 and 91,174 households were enumerated in this manner. Once the household is enumerated, some household members are selected for an extended interview concerning smoking behavior and attitudes/opinions on smoking-related issues. The initial household “screening” interview takes about 5 minutes to complete, and the extended interviews about 20-25 minutes.

As with other telephone surveys, the CTS showed a marked decline in response rates between 1990 and 2002, from 75.1% to 45.7%. A common reason cited for this is public annoyance over the rise in telemarketing. This change in response rates could potentially bias CTS results, if households with smokers were much less likely to cooperate over time. However, the CTS were fielded at nearly the same times as a large national in-household survey (interviewer knocks on the door), the Current Population Survey (CPS), conducted by the Bureau of the Census for labor-force monitoring. Every 3 years, the CPS includes a tobacco-use supplement (TUS). While the Bureau of the Census’ ability to complete household surveys has also declined over the same period, the decline was modest compared to that experienced by the CTS. Since the CPS can compute state-specific estimates of smoking prevalence, it is possible to compare CPS adult current smoking prevalence estimates to CTS estimates. These data are presented in **Table 2.1**.

Smoking prevalence estimates in both surveys are very close, both show the identical trend, and there is no suggestion that the difference between the estimates is increasing. Also, the CPS-TUS estimates were lower than the CTS estimates, even though the surveys were conducted about 6 months earlier. Thus, there is no indication that the declining response rates for the CTS are resulting in a sample of cooperating households with disproportionately fewer smokers than are in the California population.

Table 2.1
Comparison of Smoking Prevalence Estimates and Response Rates
for CTS and CPS (California only)

| | CPS | | | CTS | | |
|------------------|--------|--------------------------|----------------------|--------|--------------------------|---------------------|
| | N | Prevalence (%∓95% CI) | Response Rate, %* | N | Prevalence (%∓95% CI) | Response Rate, % |
| 1992/1993 | 21,059 | 18.9 (∓1.0) | 82.0 - 84.9 | 63,269 | 20.2 (∓0.5) | 70.0 |
| 1995/1996 | 17,787 | 17.8 (∓0.7) | 78.8 - 80.9 | 78,337 | 18.1 (∓0.4) | 55.1 |
| 1998/1999 | 18,926 | 16.4 (∓0.9) | 76.2 - 81.3 | 93,554 | 17.5 (∓0.3) | 51.1 |
| 2001/2002 | 16,049 | 14.4** | NA | 71,308 | 15.4 (∓0.3) | 45.7 |

*RANGE OF RESPONSE RATES FOR SEPTEMBER, JANUARY AND MAY SURVEYS.

**PRELIMINARY DATA NA=NOT AVAILABLE

Section 1 of this chapter describes how the CTS measured current smoking prevalence among adults and presents the results for the CTS conducted between 1990 and 2002. Section 2 looks at the prevalence trends by demographic subgroups of the population, and Section 3 examines these trends within each of the 18 California regions. Section 4 examines possible explanations for the observed declines in adult smoking prevalence. Section 5 looks at adults' use of other tobacco products. Sections 6 through 8 present similar results for adolescents, and Section 9 summarizes the results of the chapter.

1. Current Smoking Prevalence Among Adults

To determine current smoking status, respondents to the recent CTS must answer two questions.

{As far as you know}{have you/has person} smoked at least 100 cigarettes during {your/his/her} lifetime?

{As far as you know}{do you/does person} smoke cigarettes every day, some days or not at all?

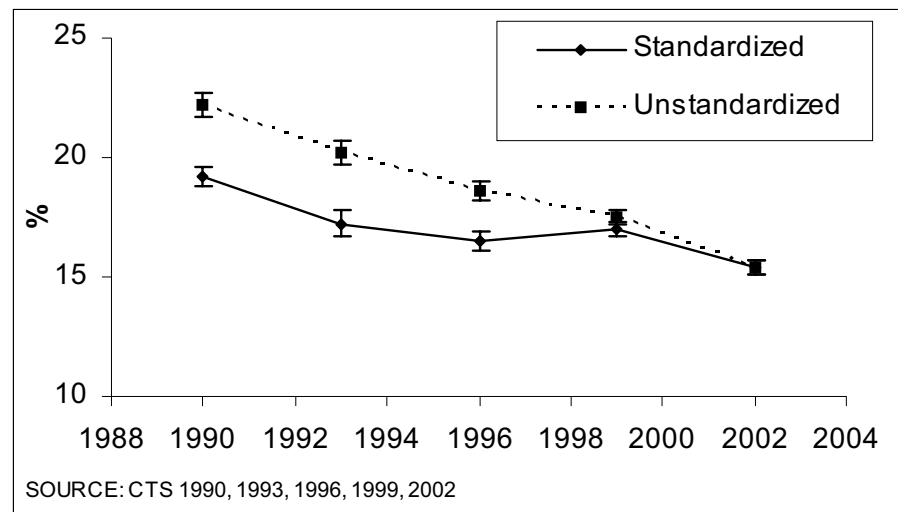
To be considered a current smoker, the respondent had to answer "yes" to the first question, and "every day" or "some days" to the second. However, for the 1990, 1993, and 1996 CTS, the screener respondent was asked if household adults "smoke now." To be consistent with national surveys, the CTS question was changed in 1999 to "smoke some days or everyday."¹ The new way of asking about smoking status produces higher estimates of smoking prevalence, probably because infrequent smokers are more likely to be identified as some-day smokers rather than nonsmokers by a proxy respondent. Also, people answering for themselves are also more likely to admit to smoking with the new question.

¹ The new smoking status question was included on the 1996 adult extended interview so that it could be used to compare smoking prevalence in 1999 with that in 1996. The question change complicated the presentation of smoking prevalence results in 1999, as screener data were used from 1990 to 1996 to establish a trend, and data from the adult extended interview were presented for 1996 and 1999 to evaluate change between these years. In the present report, to simplify the presentation, only results from the screener survey are reported.

When assessing trends in smoking prevalence, it is important to keep in mind that prevalence could decline for two reasons other than successful tobacco control efforts. First, California has experienced migration into the state from other states and from other countries, and it has also lost population to other states (US Bureau of Census, 2003). If nonsmokers are more represented in the groups migrating into the state or smokers are more represented in the groups migrating out, prevalence would decline. A second reason is the possibility of more under-reporting, because admitting to smoking is increasingly less socially desirable.

To account for the first reason, the results presented in this chapter are standardized to 2002 population totals; the procedure is explained in Volume 3 of the CTS Technical Report (Gilpin et al., 2004). To illustrate the effect of standardization, **Figure 2.1** shows the standardized and unstandardized estimates of adult smoking prevalence from the California Tobacco Survey screener instruments in each survey year. The lower standardized estimates as compared to the unstandardized estimates are in part because of increasing immigration from Hispanic and Asian populations with very low smoking rates among women. They could also reflect a net migration of smokers out of the state.

Figure 2.1: Adult Smoking Prevalence, Standardized (2002) vs. Unstandardized. Data plotted are presented in Appendix Table A.2.1.



Smoking prevalence among adults was 15.4% in 2002, a decline by a factor of 10% from 1999.

Between 1990 and 2002, standardized adult smoking prevalence declined significantly by a factor of 21.0%, from 19.5 \pm 0.5% to 15.4 \pm 0.3%. More recently, between 1999 and 2002, the observed decline in prevalence by a factor of 9.9% was also significant. The data presented in Figure 2.1 indicate that when standardizing to the 2002 population profile, the decline in prevalence was not as great as it would have been had the unstandardized prevalence rates been considered. The unstandardized rates are a snapshot of smoking prevalence in the population as it existed demographically in that survey year.

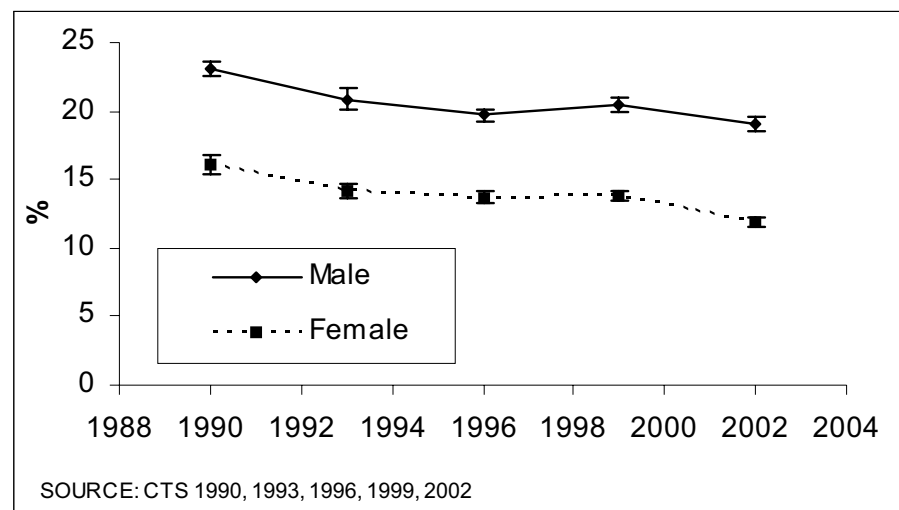
2. Current Smoking Prevalence for Demographic Subgroups of the Population

Appendix Tables A.2.1, A.2.2 and A.2.3 present the main standardized demographic breakouts for adult smoking prevalence from each of the CTS. These tables provide the data for the entire population, and for each gender separately. The figures below highlight these data by demographic subgroups of the population within gender.

Gender

Figure 2.2 shows the standardized smoking prevalence for adult men and women separately (standardized by age, race/ethnicity, and education).

Figure 2.2: Standardized Smoking Prevalence (2002) by Gender.
Data plotted are presented in Appendix Table A.2.1.



Women showed a greater decline in smoking prevalence since 1999 than men.

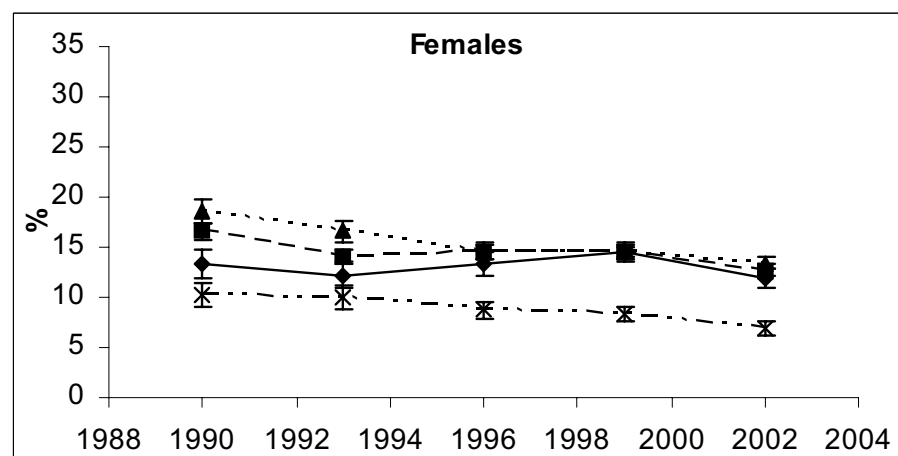
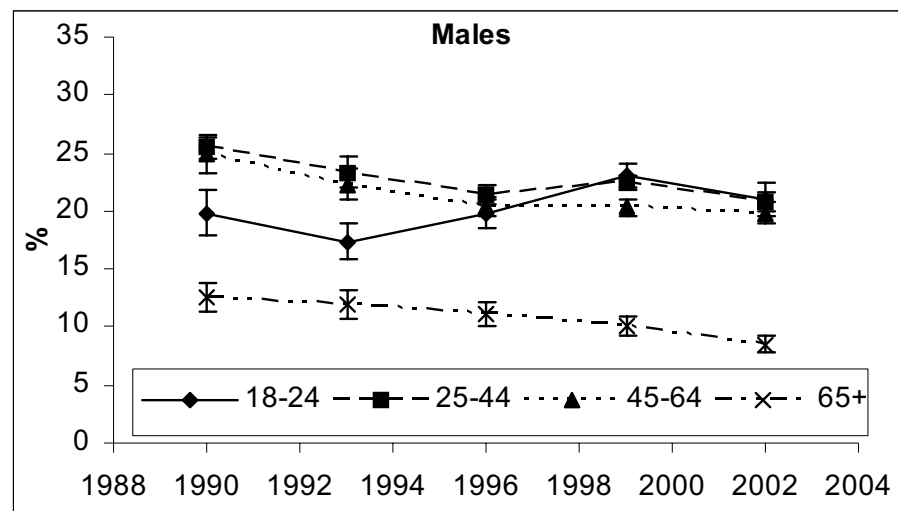
Smoking prevalence among adult California women was consistently lower than among California men. Further, the decline between 1999 and 2002 was more marked for women than for men; women showed a factor decline of 13.8% compared to 6.8% for men. The recent decline was significant for women but not for men.

Age

Figure 2.3 presents the age trends for males and females. Both older men and women in the retirement years showed steady declines in smoking prevalence between 1990 and 2002. An overall declining trend was also seen for men and women in the next youngest age group, 45- to-64-year-olds.

For both young men and women aged 18 to 24 years, smoking prevalence increased markedly between 1993 and 1999, with the increase being greater for men. In both men and women, 2002 prevalence was lower than in 1999, although the decline was significant only for women (a factor of 17.9%) but not men (a factor of 9.1%). The increased prevalence between 1993 and 1999 also was apparent in 25- to 44-year-old women. However, the change of study question may be responsible for some of the apparent increase between 1996 and 1999.

Figure 2.3: Standardized (2002) Smoking Prevalence by Age (Males and Females). Data plotted are presented in Appendix Tables A.2.2 and A.2.3.



SOURCE: CTS 1990, 1993, 1996, 1999, 2002

Race/Ethnicity

Standardized by education and age, the prevalence rates in **Figure 2.4** indicate that African American men and women consistently smoked at higher rates than other racial/ethnic groups. Except for 1993, smoking prevalence in the other male racial/ethnic groups was similar in each year. Also, over the entire period, the declines were very similar; except for African Americans, the other racial/ethnic groups of males started out with a prevalence of about 22% in 1990 and reached a prevalence of about 18% in 2002.

Figure 2.4: Standardized (2002) Smoking Prevalence by Ethnicity (Males and Females). Data plotted are presented in Appendix Tables A.2.2 and A.2.3.

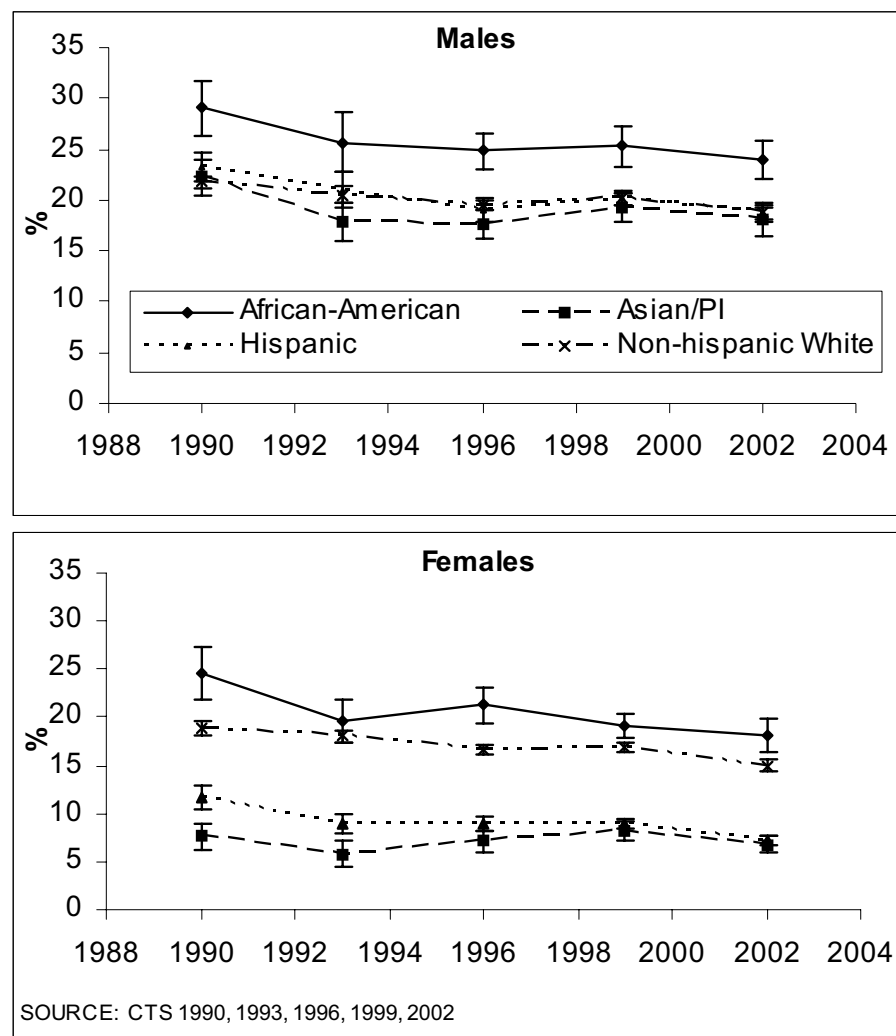


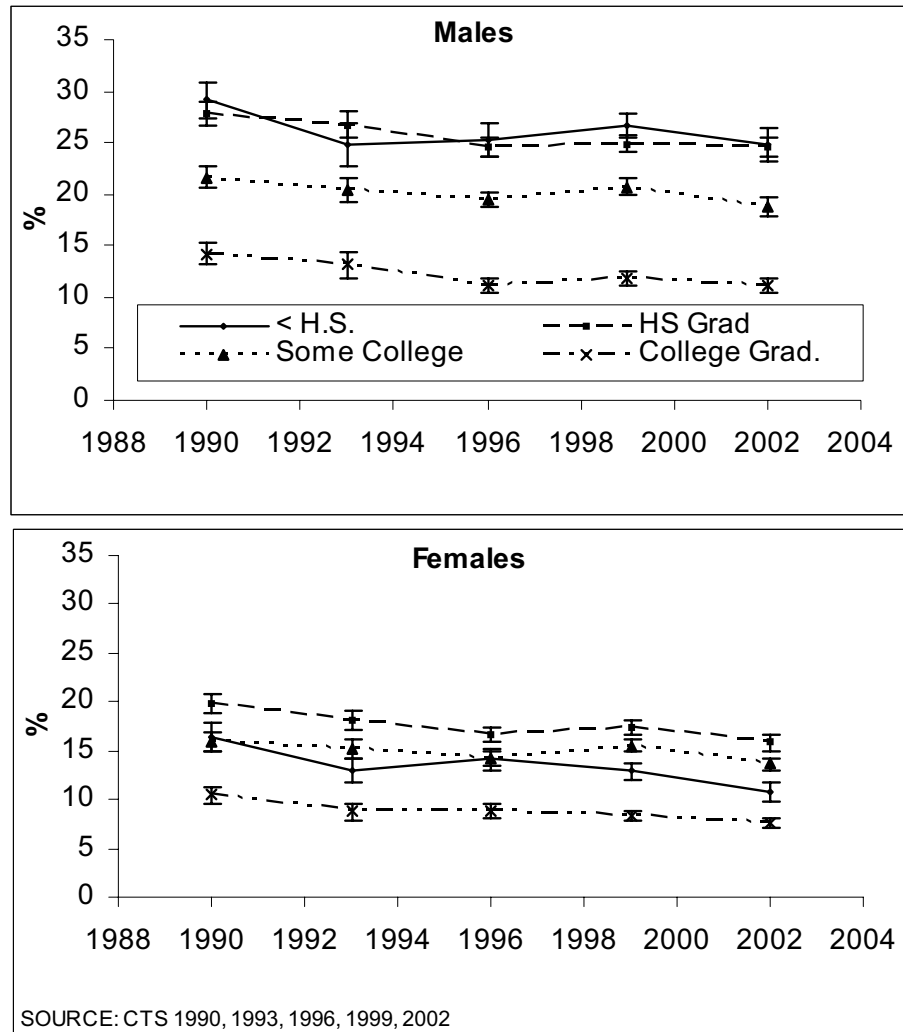
Figure 2.4 shows clearly that smoking prevalence is much lower in Asian/PI and Hispanic women compared to African American and Non-Hispanic White women. Earlier in the 1990s, Asian/PI women showed lower smoking prevalence than Hispanic women, but this

difference had disappeared by 1999. While the decline between 1999 and 2002 was significant for all women, the smaller sample sizes yielded significant declines only for Hispanic and Non-Hispanic White women.

Education

Figure 2.5 shows the standardized (by age, race/ethnicity) prevalence trends for education groups within gender. For men, prevalence was particularly high among those who failed to graduate from high school and for high school graduates in all years. Over the entire period, the declines in prevalence were significant for all education groups, but the decline was greatest for college graduates (by a factor of 21.1%). The decline between 1999 and 2002 was significant only for those with some college.

Figure 2.5: Standardized (2002) Smoking Prevalence by Education (Males and Females). Data plotted are presented in Appendix Tables A.2.2 and A.2.3.



Most likely reflecting racial/ethnic differences, prevalence among women was generally lower among those who did not graduate from high school than for high school graduates, and in some years prevalence for those who did not complete high school was even significantly lower than for those with some college. All education groups showed significant declines in prevalence over the entire period, with the largest decline, by a factor of 34.2%, among those who did not graduate from high school. Also, the recent decline between 1999 and 2002 was particularly marked for the women with the least education, and was significant for all educational groups except college graduates. By 2002, only 11.2±0.7% of men and 7.5±0.4% of women with a college education were current smokers.

3. Current Smoking Prevalence Among Adults by Region

Figure 2.6 shows the grouping of the various California counties into the 18 sampling regions. The numbers in the figure legend correspond to the list of regions in Tables 2.2 and 2.5. Except for region 18 (Imperial, Inyo, Kern, Kings, Mono, and Tulare counties), the regions are all comprised of contiguous counties. The regions differ with respect to demographic composition, which may change over time as it does in the state overall. Thus, to make valid comparisons among regions or within a region over time, the data need to be standardized. However, because of the relatively small sample sizes for some regions, prevalence estimates were adjusted using a procedure described elsewhere (Gilpin et al., 2004) so that comparisons are possible.

Figure 2.6: Sampling Regions in California

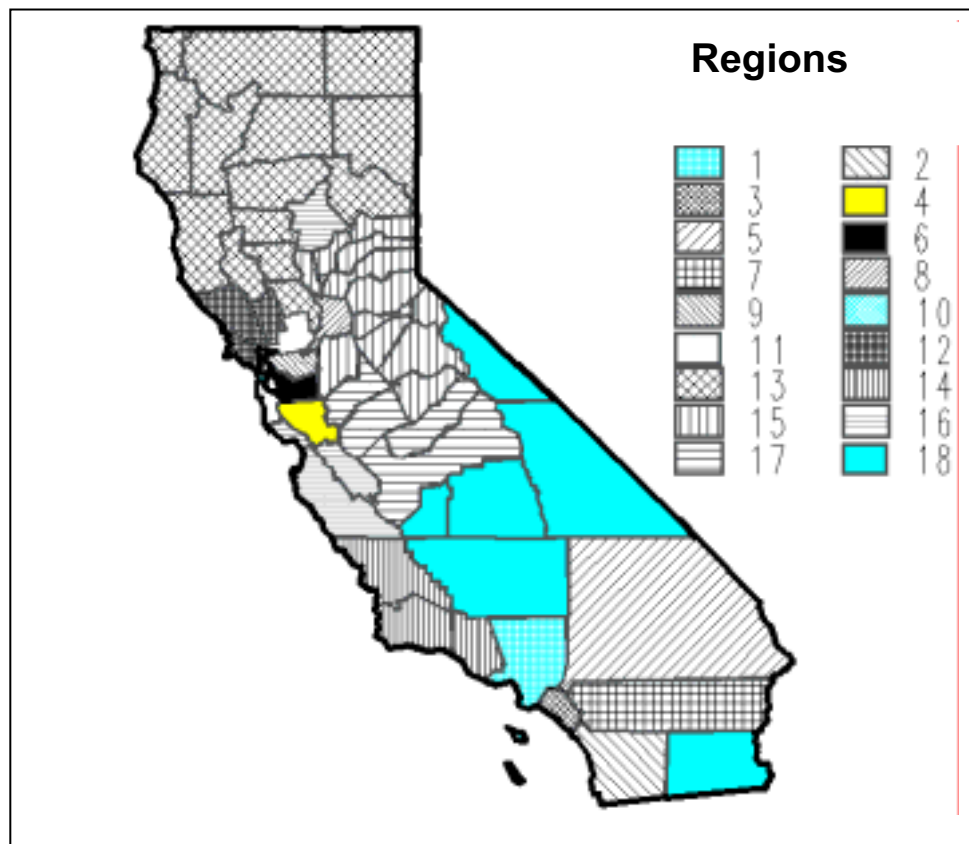


Table 2.2 shows the adjusted smoking prevalence rates from the screener survey in each year. While all regions showed some degree of decline in adult smoking prevalence between 1990 and 2002, the decline was not significant for half: Orange, Riverside, San Francisco, the two-county region including San Mateo and Solana, the 15-county region including Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Plumas, Shasta, Siskiyou, Tehama, Trinity, and Yolo, the 12-county region including Alpine, Amador, Calaveras, El Dorado, Mariposa, Nevada, Placer, San Joaquin, Sierra, Sutter, Tuolumne, and Yuba, the three-county region including Monterey, San Benito and Santa Cruz, the four-county region including Fresno, Madera, Merced, and Stanislaus, and the six-county region including Imperial, Inyo, Kern, Kings, Mono, and Tulare. However, some of the regions listed above had relatively low prevalence rates in 1990 (Orange, the two-county region of San Mateo and Solana, and the three-county region of Monterey, San Benito and Santa Cruz). Nevertheless, two other regions, Santa Clara, and the three-county region of San Luis Obispo, Santa Barbara, and Ventura started at relatively low levels and showed significant declines in smoking prevalence between 1990 and 2002.

| Table 2.2 Adjusted Adult Current Smoking Prevalence from Screener Survey by Region | | | | | | | |
|--|-------------|-------------|-------------|-------------|-------------|--------------------------------------|--------------------------------------|
| Region | 1990 % | 1993 % | 1996 % | 1999 % | 2002 % | Factor Decrease 1990-2002 % | Factor Decrease 1999-2002 % |
| 1-Los Angeles | 19.4 (∓1.3) | 16.7 (∓1.2) | 16.2 (∓0.8) | 16.2 (∓0.6) | 14.7 (∓0.6) | -24.2 | -9.3 |
| 2-San Diego | 19.7 (∓2.1) | 16.1 (∓1.4) | 15.6 (∓1.4) | 17.3 (∓1.4) | 14.5 (∓1.0) | -26.4 | -16.2 |
| 3-Orange | 16.3 (∓2.1) | 15.2 (∓1.8) | 13.9 (∓1.2) | 14.6 (∓1.0) | 13.8 (∓1.2) | -15.3 | -5.5 |
| 4-Santa Clara | 16.5 (∓2.1) | 14.7 (∓1.8) | 12.4 (∓1.2) | 13.2 (∓1.2) | 11.6 (∓1.0) | -29.7 | -12.1 |
| 5-San Bernardino | 22.4 (∓1.9) | 18.8 (∓1.8) | 19.0 (∓2.2) | 20.0 (∓1.6) | 18.2 (∓1.2) | -18.8 | -9.0 |
| 6-Alameda | 19.2 (∓2.3) | 17.5 (∓2.0) | 17.3 (∓1.8) | 15.2 (∓1.6) | 14.8 (∓1.4) | -22.9 | -2.6 |
| 7-Riverside | 20.9 (∓1.9) | 17.1 (∓1.6) | 17.6 (∓1.8) | 19.6 (∓1.6) | 19.2 (∓1.4) | -8.1 | -2.0 |
| 8-Sacramento | 22.0 (∓2.1) | 21.0 (∓2.0) | 19.5 (∓1.6) | 18.1 (∓1.4) | 17.6 (∓1.2) | -20.0 | -2.8 |
| 9-Contra Costa | 19.3 (∓1.6) | 18.5 (∓1.8) | 16.6 (∓1.8) | 16.1 (∓1.8) | 13.3 (∓1.2) | -31.1 | -17.4 |
| 10-San Francisco | 19.2 (∓2.3) | 18.3 (∓1.6) | 18.7 (∓1.8) | 18.4 (∓1.2) | 17.2 (∓1.8) | -10.4 | -6.5 |
| 11-San Mateo, Solano | 16.9 (∓1.4) | 16.6 (∓1.8) | 15.6 (∓1.8) | 17.2 (∓1.6) | 14.4 (∓1.4) | -32.5 | -16.3 |
| 12-Marin, Napa, Sonoma | 18.1 (∓1.6) | 15.4 (∓1.4) | 15.4 (∓1.2) | 15.2 (∓1.6) | 14.3 (∓1.2) | -20.1 | -5.9 |
| 13-Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Plumas, Shasta, Siskiyou, Tehama, Trinity, Yolo. | 21.1 (∓1.6) | 20.2 (∓1.8) | 20.0 (∓1.6) | 21.9 (∓2.0) | 19.8 (∓1.4) | -6.2 | -9.6 |
| 14-San Luis Obispo, Santa Barbara, Ventura | 16.5 (∓1.9) | 17.2 (∓1.6) | 16.0 (∓1.8) | 16.3 (∓1.6) | 13.1 (∓1.0) | -20.6 | -19.6 |
| 15-Alpine, Amador, Calaveras, El Dorado, Mariposa, Nevada, Placer, San Joaquin, Sierra, Sutter, Tuolumne, Yuba | 21.2 (∓2.5) | 20.8 (∓2.0) | 19.0 (∓1.4) | 19.6 (∓1.6) | 17.7 (∓1.2) | -16.5 | -9.7 |
| 16-Monterey, San Benito, Santa Cruz | 16.5 (∓1.6) | 16.7 (∓2.0) | 14.9 (∓1.8) | 15.5 (∓1.6) | 14.4 (∓1.2) | -12.7 | -7.1 |
| 17-Fresno, Madera, Merced, Stanislaus | 21.0 (∓1.9) | 18.1 (∓1.8) | 17.7 (∓2.0) | 18.3 (∓1.4) | 18.3 (∓1.6) | -12.9 | 0 |
| 18-Imperial, Inyo, Kern, Kings, Mono, Tulare | 19.5 (∓2.1) | 18.2 (∓2.0) | 19.2 (∓1.8) | 18.5 (∓1.4) | 17.8 (∓1.4) | -8.7 | -3.8 |

TABLE ENTRIES ARE ADJUSTED (2002) PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1993, 1996, 1999, 2002

Five regions showed recent significant declines in adult smoking prevalence between 1999 and 2002: San Diego, Santa Clara, Contra Costa, the two-county region of San Mateo and Solana, and the three-county region of San Luis Obispo, Santa Barbara and Ventura. The significant recent decline for San Mateo-Solana was because of an increase in prevalence in 1999.

In 2002, no region had a smoking prevalence over 20%, but six regions did in 1990. Further, in 2002, four regions showed a prevalence under 14% and 10 under 15%, but no region had a prevalence under 16% in 1990.

The range from highest to lowest prevalence among regions in 1990 differed by a factor of 27% (16.3 to 22.4%), and in 2002 it differed by a factor of 41% (11.6 to 19.8%), highlighting that the California Tobacco Control Program has been more effective in reducing smoking in some regions of the state than in others.

4. What Contributed to the Decline in Smoking?

The standardized estimates of adult smoking prevalence (see Section 1 above) suggest that other factors have contributed to the decline in smoking besides immigration. Smokers may quit, and younger cohorts of people entering adulthood may smoke at lower rates than earlier generations, and there is the issue of under-reporting of smoking in an environment where smoking is less socially desirable. In this section, various reasons for the decline in population smoking behavior are explored using a birth-cohort analysis of standardized estimates.

The birth-cohort analysis examined measures of smoking behavior as the cohorts aged and were observed in the 1990, 1996, and 2002 CTS. Four 6-year birth cohorts were selected: 1941-1946, 1947-1952, 1953-1958, and 1959-1964, so that the group has aged 6 years between surveys. The youngest person in the youngest cohort was at least 25 years of age in 1990, beyond the usual age window for smoking uptake, and the oldest person in the oldest cohort was still young enough in 2002 (62 years) so that mortality should not greatly complicate interpretation of the results. For comparison, data for two younger cohorts are also shown: 1965-1970 in 1999 and 2002, and 1971-1976 in 2002.

Table 2.3 shows the percentage of each birth cohort that are considered ever smokers, that is, who answered yes to the question about smoking at least 100 cigarettes in their lifetime.

There appeared to be a lower percentage of more recent birth cohorts reaching the age group of 25 to 30 years as ever smokers: 66.5±2.8% of those born between 1959 and 1964 were ever smokers when they were in this age group compared to 58.1±3.5% of those born between

| Table 2.3 | | | |
|---|-------------------|-------------------|-------------------|
| Prevalence of Ever Smoking by Birth Cohort | | | |
| Birth Cohort | 1990 % | 1996 % | 2002 % |
| 1941-1946 | 75.0 (±2.6) | 71.0 (±3.9) | 75.4 (±4.7) |
| 1947-1952 | 73.4 (±3.0) | 71.2 (±3.3) | 68.5 (±4.1) |
| 1953-1958 | 69.0 (±3.0) | 69.5 (±3.4) | 69.3 (±3.2) |
| 1959-1964 | 66.5 (±2.8) | 65.2 (±3.3) | 66.5 (±3.0) |
| 1965-1970 | | 60.9 (±3.6) | 62.2 (±3.5) |
| 1971-1976 | | | 58.1 (±3.5) |

TABLE ENTRIES ARE STANDARDIZED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1996, 1999

1971 and 1976. This suggests that in the future, if not already to a slight extent, prevalence will decline because fewer people enter adulthood as ever smokers. Assuming that the percentage of ever smokers who are current smokers in young adulthood remains constant, there should be fewer current smokers. However, it is possible that the percentage of ever smokers who are current smokers could increase and cancel out this effect.

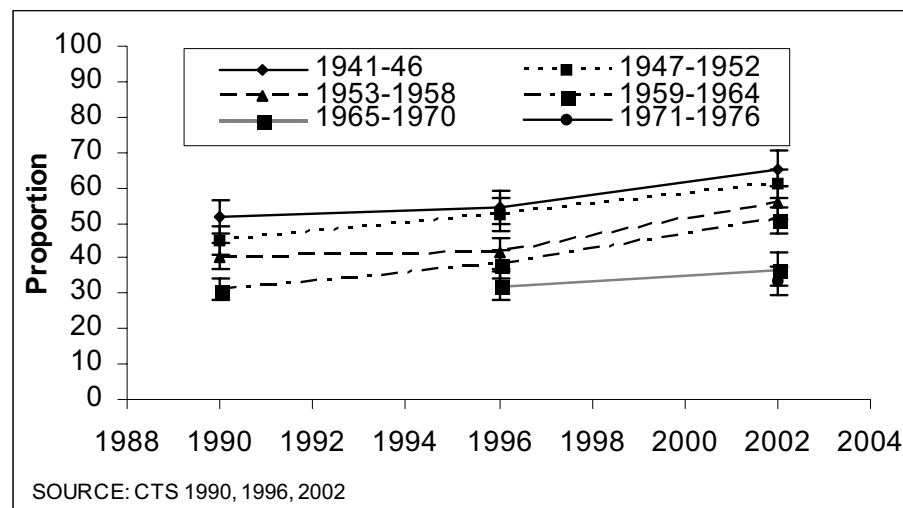
Is There Evidence of Under-reporting?

There is no evidence to suggest that report of ever smoking at least 100 cigarettes declined within a cohort as it was observed cross-sectionally over time (Table 2.3). The slight decline in the 1947-1952 birth cohort was within the margin of error and likely reflects sampling variability. Thus, any newer social stigma attached to ever smoking is not resulting in lower reported rates over time.

However, it is possible that social desirability could affect reporting of current smoking without affecting reporting of ever being a smoker. In that case, it is likely that such individuals will report having quit in the recent past. To avoid this potential bias in computing the quit ratio, a measure of population cessation (Pierce et al, 1989; USDHHS, 1989), smokers had to be quit for one year or longer to be considered a former smoker. This had the added advantage of focusing on successful cessation.

Figure 2.7 shows the percentage of ever smokers who are former smokers (quit ratio) in each birth cohort as it is observed over time.

Figure 2.7: Quit Ratio (Quit 1+ Years) for Birth Cohorts



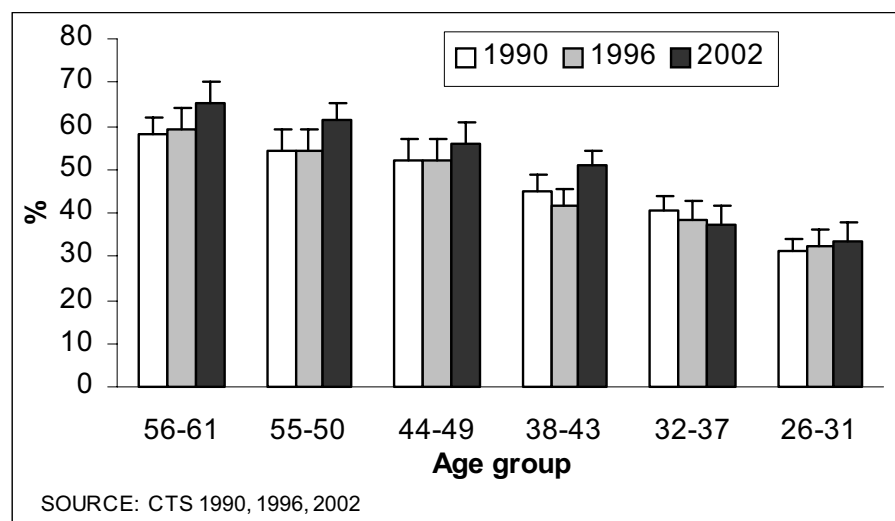
| Cohort | 1990 | 1996 | 2002 |
|-----------|------|------|------|
| 1941-1946 | 51.8 | 54.5 | 65.3 |
| 1947-1952 | 44.8 | 52.2 | 61.1 |
| 1953-1958 | 40.4 | 41.4 | 55.9 |
| 1959-1964 | 31.1 | 38.3 | 50.8 |
| 1965-1970 | | 32.2 | 37.0 |
| 1971-1976 | | | 33.4 |

The quit ratios for those 25-30 years of age in each year were all about 30%, which indicates that the 70% ratio of current to ever smokers for young adults was constant from 1990 through 2002. A further analysis of people in each birth cohort who said they were smoking a year previous to the survey but who indicated they were quit at the time of the survey did not reveal any apparent increases in recent quitting over time that would suggest smokers are reporting that they quit relatively recently rather than admit to current smoking.

It is to be expected that more and more ever smokers will successfully quit as they get older and begin to experience smoking-related health problems, and the upward trend in the quit ratio for each cohort over time is apparent in Figure 2.7. However, it is also of interest to see if groups the same age in each year show increased quitting over time.

Figure 2.8 plots the data from Figure 2.7 by age group; people born in 1941-1946 were 56-61 years old in 2002, and data for this age group of smokers from the 1990 and 2002 CTS complete the plot. From this plot it is clear that all age groups over 37 years showed increased quitting in 2002 compared to earlier years, which collectively is mainly responsible for the recent drop in smoking prevalence documented earlier in this chapter.

Figure 2.8: Quit Ratio (Quit 1+ Years) for Age Groups



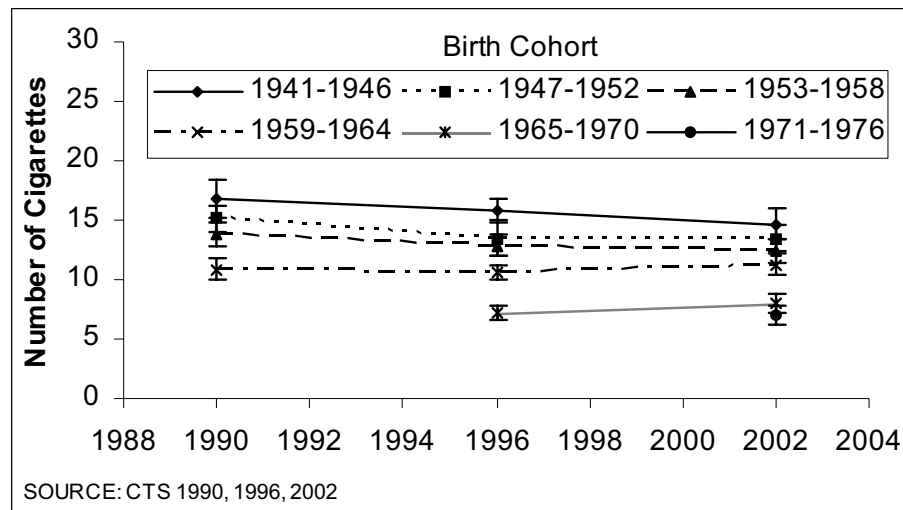
| Age group | 1990 | 1996 | 2002 |
|-----------|------|------|------|
| 56-61 | 58.1 | 59.4 | 65.3 |
| 55-50 | 54.2 | 54.5 | 61.1 |
| 44-49 | 51.8 | 52.2 | 55.9 |
| 38-43 | 44.8 | 41.4 | 50.8 |
| 32-37 | 40.4 | 38.3 | 37 |
| 26-31 | 31.1 | 32.2 | 33.3 |

Are Smokers Who Have Not Quit More Nicotine Dependent?

It has been hypothesized that smokers who managed to successfully quit are those who were less addicted, leaving behind a pool of smokers with relatively higher levels of

cigarette consumption who could be considered more “hard core” (Scherer, 1999). However, as shown in **Figure 2.9**, there was no indication that the remaining current smokers in each cohort have higher daily levels of cigarette consumption.

Figure 2.9: Mean Number of Cigarettes Per Day



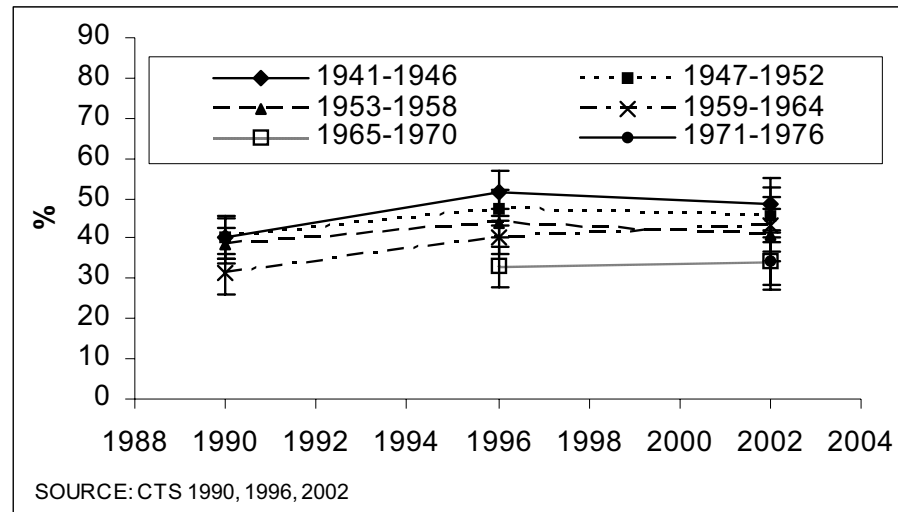
| Cohort | 1990 | 1996 | 2002 |
|-----------|------|------|------|
| 1941-1946 | 16.9 | 15.9 | 14.7 |
| 1947-1952 | 15.2 | 13.4 | 13.5 |
| 1953-1958 | 13.8 | 12.9 | 12.5 |
| 1959-1964 | 10.9 | 10.6 | 11.3 |
| 1965-1970 | | 7.2 | 8.1 |
| 1971-1976 | | | 7.0 |

The slight declines over time were within the margin of error for each cohort. There is considerable evidence that smokers can titrate the amount of nicotine they get from each cigarette (Scherer, 1999), which would allow them to reduce the number of cigarettes they smoke and still maintain the nicotine level that they crave. However, some of the reduction in the average daily cigarette consumption in California smokers (see Chapter 8) appears to be coming from new cohorts not reaching the higher consumption levels of previous cohorts. Perhaps smoking restrictions and other changes in social norms regarding smoking are keeping younger cohorts of smokers from reaching the high levels of consumption seen in older cohorts (Gilpin & Pierce, 2002). Between 1974 and 1985, when US smokers could generally smoke whenever they wanted, between 25% to 30% were heavy daily smokers (≥25 cigarettes/day) (USDHHS, 1989). In 2002, the percentage of all California smokers who were heavy smokers was only 8.2±0.9%. Appendix Table A.2.4 contrasts the demographics of daily smokers in 2002 with respect to consumption level. In general, the heavy smokers tended to be male, older, and less educated.

Another indication of a high level of addiction is whether a smoker smokes within 30 minutes of awakening (Fagerstrom & Schneider, 1989). As **Figure 2.10** shows, the percentage of smokers who smoke within 30 minutes of awakening increased in each birth

cohort between 1990 and 1996, but these increases were only of borderline statistical significance. One interpretation of this increase is that when California workplaces became smoke-free in 1995, smokers adapted by smoking more before they arrived at work in the morning and had to have their first cigarette earlier. No further increases were observed between 1996 and 2002. In 2002, less than half of California smokers in each birth cohort smoked within 30 minutes of awakening, and less than 20% smoked within 10 minutes.

Figure 2.10: Daily Smokers Who Smoke Within 30 Minutes of Waking



The data presented above indicate that quitting is likely responsible for most of the recent decline in smoking prevalence among California adults, and that decreased initiation will play a larger role in the future, as cohorts with fewer ever smokers age through the population. Further, there is no marked evidence that the remaining smokers are more addicted, suggesting that current quitting trends should continue.

5. Adult Use of Other Tobacco Products

Adult cigar use increased substantially in the mid-1990s, which may be attributed to an advertising campaign that promoted cigar smoking as a trendy symbol of sophistication. Public health professionals were particularly concerned by this trend (USDHHS, 1998). One cigar may be equivalent to 10 cigarettes in terms of nicotine, tar, and carbon monoxide exposure (Rickert et al., 1985; Henningfield et al., 1996), but a detailed analysis of data from the 1999 CTS indicated that only about a quarter of current cigar smokers in California (24.8÷4.2%) smoked more than three cigars/month (Gilpin & Pierce, 2001). Further, only 14.5÷6.4% of former cigarette smokers smoked 30 or more cigars in the last

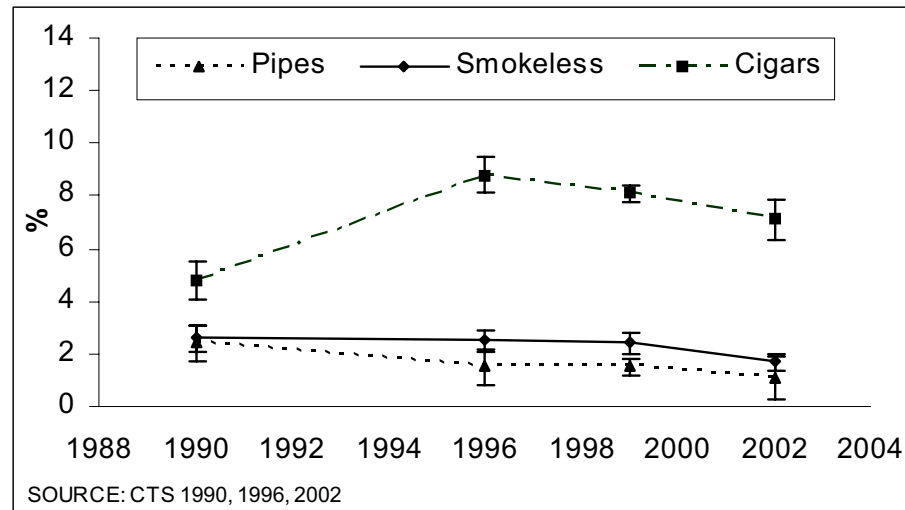
month, a rate that probably indicates a continuation of nicotine addiction. Thus, while it is important to monitor the use of cigars and other tobacco products, the main public health problem remains cigarette smoking.

Just as for cigarette use, the 1990, 1996, 1999, and 2002 CTS asked adults who admitted to ever using any forms of tobacco other than cigarettes, whether they now used a particular product everyday, some days or not at all. To determine the current prevalence of product use, the responses for everyday and some days were combined.

In 2002, cigar use was still higher by a factor of 48% than in 1990, despite a decline from the 1996 peak.

Use of other tobacco products among adult females is rare, so **Figure 2.11** shows the use of pipes, smokeless tobacco (chewing tobacco or snuff), and cigars in each survey year only for adult males. Smokeless tobacco use declined only very slightly between 1990 and 1999, but showed a significant decline between 1999 and 2002. Pipe use declined significantly between 1990 and 1996, was unchanged in 1999, but declined significantly again between 1999 and 2002.

Figure 2.11: Other Current Tobacco Use Among Adult Males



| | 1990 | 1996 | 1999 | 2002 |
|-----------|------|------|------|------|
| Pipes | 2.4 | 1.5 | 1.5 | 1.1 |
| Smokeless | 2.6 | 2.5 | 2.4 | 1.7 |
| Cigars | 4.8 | 8.8 | 8.1 | 7.1 |

While cigar use among males increased markedly between 1990 and 1996, (by a factor of 83%), and significantly declined since then, prevalence among California males still remains higher than it was in 1990 by a factor of 48.0%.

Appendix tables (A.2.5 and A.2.6) present additional data on other tobacco product use in 1990, 1996, 1999, and 2002, by male age group for pipes and smokeless tobacco, and by gender, age and smoking status for current cigar use. Current cigar use declined significantly in males between 1996 and 2002. Young adult males 18 to 24 years of age, the group most likely to use cigars since they were heavily promoted, showed a marginally significant decline between 1999 and 2002. Marginally significant declines in cigar use were also observed for male never and former cigarette smokers.

6. Adolescent Smoking Prevalence

Surveys to monitor current smoking among adolescents generally use the answers to the following questions to determine smoking status:

Have you ever smoked a cigarette?

Think about the last 30 days. On how many of these days did you smoke?

Adolescents answering yes to the first question are asked the second question, and anyone who gives an answer other than zero or none is considered a current smoker. All others are counted as nonsmokers for determining prevalence.

Figure 2.12 shows current smoking prevalence (standardized to 2002 population totals and unstandardized) for 12- to 17-year-olds from the 1990, 1993, 1996, 1999, and 2000 adolescent CTS. The dashed line shows the unstandardized or snapshot estimates while the solid lines present the standardized estimates, and within each year these estimates were similar. Adolescent smoking prevalence was stable from 1990 to 1993, increased markedly between 1993 and 1996, declined substantially between 1996 and 1999, and declined substantially again between 1999 and 2002. From its peak in 1996, adolescent smoking prevalence declined by a factor of 32.7% by 1999 and by a factor of 55.8% by 2002. In 2002, adolescent smoking prevalence was 5.0±0.7%.

Figure 2.12: Current Smoking Prevalence (Standardized and Unstandardized) in Adolescents (12-17 Years)

In 2002, adolescent smoking prevalence was 5.0%, a 56% factor decline from the 1996 peak.

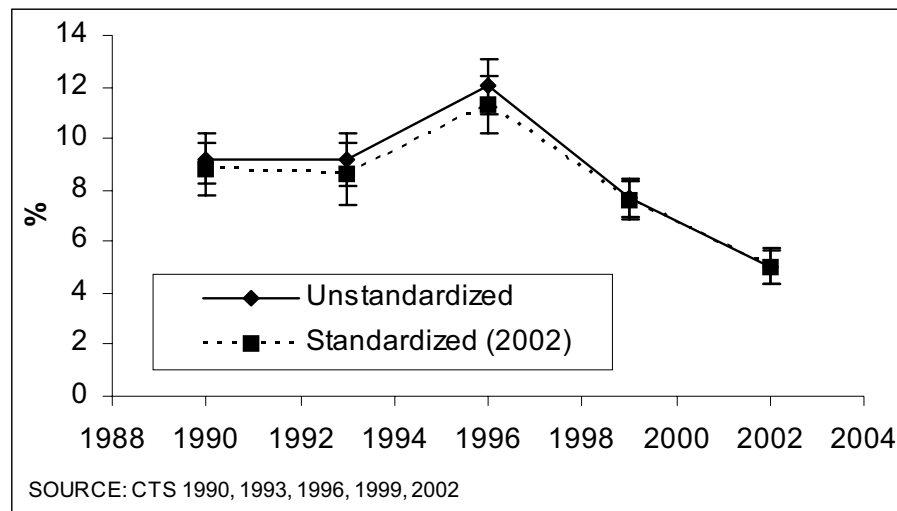


Table 2.4 gives the standardized prevalence estimates for various demographic groups for each survey. Girls consistently showed lower prevalence than boys, but the estimates were not significantly different within survey year. Also consistent across survey year was a higher prevalence rate among older compared to younger adolescents, among Hispanic and Non-Hispanic White adolescents compared to African American and Asian/PI adolescents, and for those with average or below average school performance compared to those with better or much better than average school performance.

The declines from the peak in 1996 to 2002 were about the same for boys and girls. The decline was particularly marked for young adolescents, but prevalence in this group is lower to begin with. Nonetheless, in 2002, less than 1 percent of 12- and 13-year-olds reported smoking on any of the past 30 days. Smoking prevalence among 17- and 18-year-olds decreased by a factor of 47.4% between 1996 and 2002, which, while less of a percentage decrease than in the younger age groups still represented a considerable decline. Smoking prevalence declined considerably in all racial/ethnic groups, but it is worth noting that Non-Hispanic Whites, with the highest peak prevalence in 1996, showed the largest decline by 2002 (a factor of 58.3%). Large declines in prevalence were observed regardless of school performance, but prevalence for average and below average students declined more between 1996 and 1999, while the decline for much better than average students occurred later, between 1999 and 2002.

Table 2.4
Standardized (2002) Adolescent Smoking Prevalence

| | 1990 % | 1993 % | 1996 % | 1999 % | 2002 % | Factor Increase 1993-1996 | Factor Decrease 1996-1999 | Factor Decrease 1999-2002 |
|---------------------------|-------------|-------------|-------------|-------------|-------------|---------------------------------|---------------------------------|---------------------------------|
| Overall | 8.8 (±1.0) | 8.6 (±1.2) | 11.3 (±1.1) | 7.6 (±0.7) | 5.0 (±0.7) | 31.4 | -32.7 | -34.2 |
| Gender | | | | | | | | |
| Boys | 9.5 (±1.7) | 9.5 (±1.8) | 12.4 (±1.5) | 8.0 (±1.0) | 5.6 (±1.0) | 30.5 | -35.5 | -30.0 |
| Girls | 8.0 (±1.5) | 7.8 (±1.7) | 10.1 (±1.3) | 7.2 (±1.1) | 4.4 (±0.7) | 29.5 | -28.7 | -38.9 |
| Age | | | | | | | | |
| 12-13 | 3.7 (±1.7) | 2.9 (±1.0) | 3.2 (±0.9) | 1.8 (±0.8) | 0.7 (±0.4) | 10.3 | -43.8 | -61.1 |
| 14-15 | 7.5 (±1.4) | 9.1 (±1.9) | 10.4 (±1.4) | 5.5 (±1.0) | 3.8 (±1.0) | 14.3 | -47.1 | -30.9 |
| 16-17 | 15.8 (±2.4) | 14.7 (±3.1) | 21.1 (±2.5) | 16.2 (±2.2) | 11.1 (±1.7) | 43.5 | -23.2 | -31.5 |
| Race/Ethnicity | | | | | | | | |
| African American | 6.4 (±3.0) | 7.1 (±3.5) | 8.3 (±2.4) | 7.5 (±2.5) | 4.4 (±1.6) | 16.9 | -9.6 | -41.3 |
| Asian/Pi | 5.3 (±2.8) | 6.1 (±4.5) | 8.6 (±2.5) | 5.0 (±2.1) | 3.7 (±1.6) | 41.0 | -41.9 | -26.0 |
| Hispanic | 8.9 (±2.1) | 7.0 (±1.8) | 10.6 (±1.9) | 7.6 (±1.3) | 5.0 (±1.4) | 51.4 | -28.3 | -34.2 |
| Non-Hispanic White | 10.7 (±1.3) | 11.7 (±1.3) | 13.9 (±1.1) | 8.6 (±1.2) | 5.8 (±0.9) | 18.8 | -38.1 | -32.6 |
| School Performance | | | | | | | | |
| Much Better than Average | 4.6 (±2.1) | 3.0 (±1.0) | 6.2 (±1.7) | 5.4 (±2.6) | 3.1 (±1.2) | 106.7 | -12.9 | -42.6 |
| Better than Average | 5.8 (±1.1) | 6.4 (±1.7) | 9.6 (±1.5) | 6.5 (±1.1) | 3.5 (±1.0) | 50.0 | -32.3 | -46.2 |
| Average and Below | 13.1 (±2.1) | 12.4 (±1.8) | 16.1 (±1.8) | 10.2 (±1.1) | 7.5 (±1.3) | 29.8 | -36.6 | -26.5 |

TABLE ENTRIES ARE ADJUSTED (2002) PERCENTAGES AND 95% CONFIDENCE LIMITS.

Source: CTS 1990, 1993, 1996, 1999, 2002

7. Adolescent Smoking Prevalence by Region

Just as for adult smoking prevalence, current adolescent smoking prevalence was adjusted so that estimates can be compared across regions and over time (Gilpin et al, 2004).

Table 2.5 shows the adjusted adolescent data. While smoking among adolescents has decreased markedly statewide since 1990, and all counties but San Francisco showed some decline, the small sample sizes make it problematic to discern trends for individual regions. Alameda, the 15-county region of Butte, Colusa, Del Norte, Glen, etc., and the three-county region of Monterey, San Benito, and Santa Cruz all showed significant declines between 1990 and 2002.

| Region | 1990 % | 1993 % | 1996 % | 1999 % | 2002 % | Factor Decrease 1990-2002 % | Factor Change 1996-2002 % |
|---|-------------------|-------------------|-------------------|-------------------|-------------------|--|--|
| 1-Los Angeles | 6.7 (∂2.7) | 7.3 (∂2.7) | 9.0 (∂1.0) | 6.1 (∂1.6) | 4.3 (∂1.6) | -35.8 | -29.5 |
| 2-San Diego | 7.1 (∂3.1) | 8.7 (∂4.1) | 8.6 (∂3.1) | 9.5 (∂3.1) | 5.7 (∂2.5) | -19.7 | -40.0 |
| 3-Orange | 9.8 (∂4.7) | 9.1 (∂4.9) | 16.5 (∂4.9) | 8.3 (∂3.7) | 4.5 (∂2.6) | -54.1 | -45.8 |
| 4-Santa Clara | 8.6 (∂3.1) | 9.5 (∂4.1) | 12.5 (∂5.1) | 6.8 (∂3.1) | 5.2 (∂3.2) | -39.5 | -23.5 |
| 5-San Bernardino | 12.2 (∂4.9) | 10.2 (∂5.3) | 10.6 (∂3.9) | 5.1 (∂2.0) | 5.3 (∂2.5) | -56.5 | 3.9 |
| 6-Alameda | 12.8 (∂7.2) | 7.2 (∂4.1) | 12.6 (∂5.1) | 8.4 (∂4.1) | 2.5 (∂2.2) | -80.5 | -70.2 |
| 7-Riverside | 10.2 (∂3.7) | 6.8 (∂3.1) | 13.3 (∂4.9) | 4.4 (∂2.2) | 6.6 (∂2.5) | -33.3 | 50.0 |
| 8-Sacramento | 6.3 (∂3.5) | 8.4 (∂4.9) | 15.2 (∂4.9) | 9.0 (∂3.7) | 5.0 (∂2.5) | -20.6 | -44.4 |
| 9-Contra Costa | 8.6 (∂4.1) | 9.0 (∂3.7) | 10.5 (∂4.1) | 8.6 (∂4.5) | 6.1 (∂2.7) | -29.1 | -29.1 |
| 10-San Francisco | 6.1 (∂3.9) | 5.1 (∂3.9) | 8.9 (∂5.9) | 13.0 (∂8.2) | 6.1 (∂5.3) | 0.0 | -53.1 |
| 11-San Mateo, Solano | 11.5 (∂6.2) | 11.1 (∂4.7) | 11.8 (∂4.3) | 11.2 (∂5.9) | 4.6 (∂3.0) | -60.0 | -58.9 |
| 12-Marin, Napa, Sonoma | 10.4 (∂5.6) | 16.0 (∂4.9) | 16.4 (∂5.5) | 4.5 (∂2.7) | 4.8 (∂2.4) | -53.8 | 6.7 |
| 13-Butte, Colusa, Del Norte, Glenn, etc. | 14.1 (∂4.5) | 12.3 (∂4.3) | 16.2 (∂5.3) | 13.5 (∂6.3) | 6.1 (∂3.0) | -56.7 | -54.8 |
| 14-San Luis Obispo, Santa Barbara, Ventura | 11.7 (∂4.5) | 13.2 (∂4.1) | 10.7 (∂3.5) | 5.6 (∂3.1) | 5.5 (∂2.5) | -53.0 | -1.8 |
| 15- Alpine, Amador, Calaveras El Dorado, etc. | 10.3 (∂4.7) | 8.2 (∂3.9) | 12.8 (∂3.9) | 9.3 (∂4.3) | 5.1 (∂2.4) | -50.5 | -45.2 |
| 16-Monterey, San Benito, Santa Cruz | 12.5 (∂6.4) | 12.7 (∂5.5) | 7.5 (∂3.1) | 8.6 (∂5.1) | 3.4 (∂2.1) | -72.8 | -60.5 |
| 17-Fresno, Madera, Merced, Stanislaus | 8.1 (∂3.3) | 10.7 (∂4.1) | 15.3 (∂4.5) | 9.4 (∂2.9) | 6.5 (∂2.6) | -19.6 | -30.9 |
| 18-Imperial, Inyo, Kern, Kings, Mono, Tulare | 8.0 (∂3.9) | 9.8 (∂4.5) | 8.9 (∂3.3) | 7.3 (∂3.1) | 5.2 (∂2.4) | -35.0 | -28.8 |

TABLE ENTRIES ARE ADJUSTED (2002) PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1993, 1996, 1999, 2002

For most regions, as for the state as a whole, adolescent smoking prevalence peaked in 1996, and decreased significantly in the following seven regions from 1996 to 2002: Los Angeles, Orange, Alameda, Sacramento, the 3-county region of Marin, Napa, and Sonoma, the 15-county region of Butte, Colusa, Del Norte, Glenn, etc., and the four-county region of Monterey, San Benito and Santa Cruz.

In 2002, adolescent smoking prevalence in all regions was under 7.0%, but in 1990, only three regions had a prevalence this low. In fact, in 2002, smoking prevalence in six regions was under 5.0%. In contrast to adults, the range from the highest to lowest regional prevalence did not differ as much over time (1990 by a factor of 52% vs. 2002 by a factor of 61%), perhaps suggesting that tobacco control prevention efforts targeting adolescents were more uniformly successful throughout the state than efforts to get adult smokers to quit.

8. Adolescent Use of Other Tobacco Products

Besides inquiring about cigarette smoking, the CTS monitors adolescents' use of other tobacco products. The heavy promotion of cigars in the mid-1990s (USDHHS, 1998) and the rising popularity of bidis (CDC, 2000), flavored (chocolate, vanilla, strawberry, cherry, mint, mango, etc.) hand-rolled "cigarettes" imported from India and other Asian countries, raised public health concern about adolescent experimentation with these products. It is important to monitor whether these products are passing fads or whether they have gained a significant and continuing market among adolescents. While the use of these products is mostly confined to adolescent cigarette smokers (Gilpin & Pierce, 2003), it is not clear whether these products lead to smoking or whether using such products compounds exposure to tobacco among existing cigarettes smokers. The CTS asked the following:

Have you ever tried using chewing tobacco or snuff?

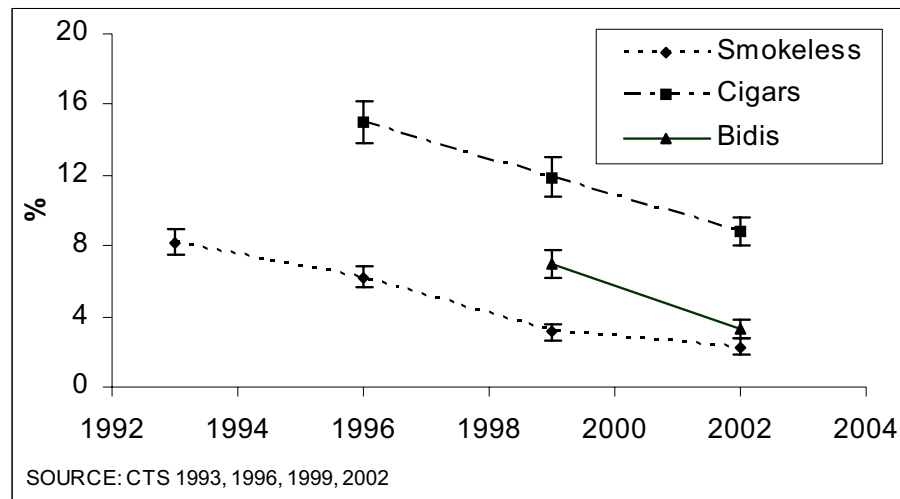
Have you ever tried cigars, cigarillos, or little cigars?

Have you ever smoked a bidi, a specially flavored cigarette from India?

If the response to any of the above questions was yes, for that product, the adolescent was then asked:

On how many of the past 30 days did you {use product}?

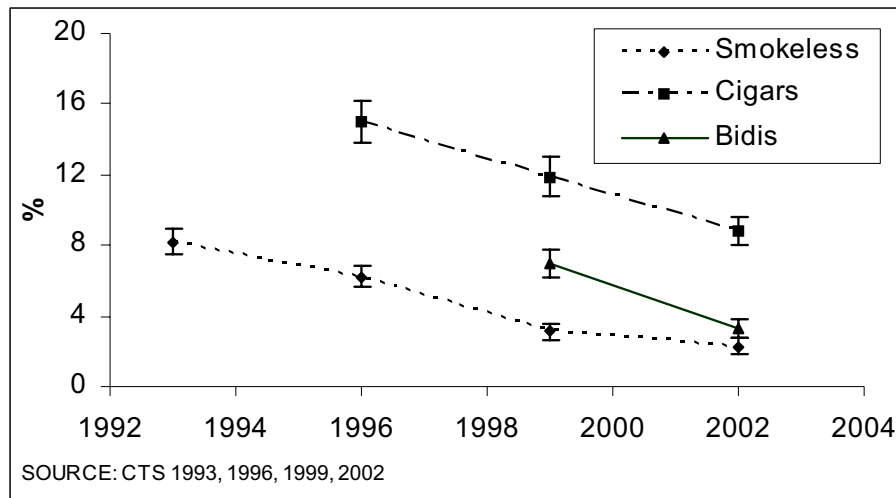
Figure 2.13 shows the percentage of adolescents reporting that they had ever tried or experimented with each of the other tobacco products. The question about smokeless tobacco use was asked on the CTS beginning in 1993, the question on cigars beginning in 1996, and the question on bidis, beginning in 1999.

Figure 2.13: Adolescent Ever Use of Other Tobacco Products

| | 1993 | 1996 | 1999 | 2002 |
|-----------|------|------|------|------|
| Smokeless | 8.2 | 6.2 | 3.1 | 2.3 |
| Cigars | | 15 | 11.9 | 8.8 |
| Bidis | | | 7 | 3.3 |

Experimentation with smokeless tobacco declined substantially between 1996 and 1999, and a smaller decline (nonsignificant) was observed by 2002, bringing ever use of this product to a very low level, $2.3 \pm 0.5\%$. Cigar experimentation declined significantly between 1996 and 1999 and again between 1999 and 2002 to $8.8 \pm 1.1\%$, and experimentation with bidis also declined significantly between 1999 and 2002; it was $3.3 \pm 0.8\%$ in 2002. A new law effective in January 2001 made the sale of bidis illegal except by businesses that prohibit the presence of minors (TEROC, 2003). Where smokeless tobacco use is rare among girls, they do experiment with cigars and bidis at rates that cannot be overlooked. Appendix Table A.2.7 presents experimentation rates with other tobacco products for demographic subgroups of adolescents.

These trends for ever experimenting are also present in current use of these products, which is plotted in **Figure 2.14** on a different vertical-axis scale. In 2002, except for cigars, current use of other tobacco products was confined to less than half a percent of the California adolescent population. Current cigar use has also declined, but was reported by $2.0 \pm 0.6\%$ of adolescents in 2002.

Figure 2.14. Adolescent Current Use of Other Tobacco Products

| | 1993 | 1996 | 1999 | 2002 |
|-----------|------|------|------|------|
| Smokeless | 1.7 | 1.0 | 0.6 | 0.5 |
| Cigars | | 4.0 | 2.9 | 2.0 |
| Bidis | | | 1.4 | 0.4 |

Adolescent experimentation with other tobacco products was related to their experience with cigarette smoking (Gilpin & Pierce, 2003), and since cigarette smoking among adolescents is declining, it is not surprising that use of other tobacco products is declining as well. Appendix Table A.2.8 presents the percentage of adolescents using other tobacco products according to their smoking experience overall and by gender. Much of the decline in experimentation with cigars is accounted for by less experimentation among susceptible never smokers, who comprise an appreciable segment of the adolescent population.

9. Summary

In 2002, current smoking prevalence among adults was 15.4±0.3%. Since 1990, smoking prevalence (standardized to 2002 population totals) has declined by a factor of 21.0% as follows: prevalence declined between 1990 and 1993; remained relatively stable between 1993 and 1999; and once more declined (by a factor of 9.9%) between 1999 and 2002. The standardized estimates account for the changes in the California population due to migration.

Smoking prevalence estimates could decline for reasons other than tobacco control success, if declining social desirability of smoking leads to under-reporting of smoking. There was little evidence for decline in report of ever smoking. The decline in smoking prevalence appears to be mostly from increased smoking cessation by older adults. Further, cessation should continue at comparable rates, as suggested by the lack of significant evidence that the pool of smokers remaining is markedly more nicotine

dependent than smokers earlier in the decade. Finally, additional declines in smoking prevalence will be the result of new cohorts of young adults with much lower rates of ever smoking.

In all survey years, smoking prevalence among women was lower than among men, and women showed double the decline between 1999 and 2002 (by a factor of 13.8%) compared to men (by a factor of 6.8%). Young women aged 18 to 24 years also showed double the decline between 1999 and 2002 (by a factor of 17.9%) than young men (a factor of 9.1%). The recent declines were significant for women, but not for men. African Americans of both genders showed higher smoking prevalence rates than other racial/ethnic groups. For males of other racial/ethnic groups, prevalence rates were similar, particularly in 1999 and 2002. Female Hispanic and Asian/PI Californians showed much lower prevalence rates than other groups, and in 1999 and 2002 the rates for these two groups were nearly the same. The highest prevalence rates in all years were for males with a high school education or less. Californians with a college education showed much lower prevalence rates in all survey years. However, most educational groups for both genders showed a net significant decline from 1990 to 2002.

Use of pipes and smokeless tobacco in adult males remained at very low levels (1.1±0.3% and 1.7±0.3%, respectively in 2002), and declined significantly between 1999 and 2002. While there was a marked increase (by a factor of 83%) in adult male cigar use between 1990 and 1996, and significant declines since then, in 2002, current cigar smoking prevalence (7.1±0.8%) among California adult males still remained higher than it was in 1990 by a factor of 48.0%.

Adolescent smoking prevalence has declined substantially since 1996, reaching 5.0±0.7% in 2002. From its peak in 1996, smoking in 12- to 17-year-olds (any smoking in last 30 days) declined by a factor of 32.4% by 1999 and by a factor of 55.8% by 2002. Chapter 7 shows that this decline occurred at all levels of smoking experience.

Adolescent experimentation with other tobacco products has also declined significantly between 1999 and 2002. In 2002, 3.9±0.9% of adolescent boys reported experimenting with smokeless tobacco products, 8.8±1.1% of all adolescents had experimented with cigars, and 3.3±0.8% had experimented with bidis. Corresponding numbers for 1999 were 5.2±0.9 for smokeless, 11.9±1.1% for cigars, and 7.0±0.8% for bidis.

These findings point to considerably less use of tobacco products by the California population in 2002 than before the California Tobacco Control Program began in 1989. Low rates of tobacco use among adolescents should contribute to lower adult smoking prevalence rates as they mature to adulthood. If recent trends accelerate slightly, California would be on target to meet the goals of 13% adult smoking prevalence by the end of 2005 (TEROC, 2003).

Chapter

2

APPENDIX

Trends in Tobacco Use in California

1. Standardized Adult Smoking Prevalence for Demographic Groups

Section 2 of this chapter presented figures showing the trends in standardized smoking prevalence by gender. Table A.2.1 shows the standardized trends for males and females together, and Tables A.2.2 and A.2.3 simply give the numbers plotted in Figures 2.1 to 2.5. These data are described in the body of this chapter.

| Table A.2.1 Standardized Adult Smoking Prevalence | | | | | | | |
|--|-------------|-------------|-------------|-------------|-------------|------------------------------------|--------------------------------------|
| | 1990 % | 1993 % | 1996 % | 1999 % | 2002 % | Factor Change 1990-2002 % | Factor Decrease 1999-2002 % |
| Overall | 19.5 (0.5) | 17.4 (0.5) | 16.6 (0.4) | 17.1 (0.3) | 15.4 (0.3) | -21.0 | -9.9 |
| Gender | | | | | | | |
| Male | 23.0 (0.6) | 20.9 (0.8) | 19.7 (0.5) | 20.5 (0.5) | 19.1 (0.5) | -17.0 | -6.8 |
| Female | 16.1 (0.7) | 14.1 (0.5) | 13.7 (0.4) | 13.8 (0.3) | 11.9 (0.4) | -26.1 | -13.8 |
| Age | | | | | | | |
| 18-24 | 16.5 (0.14) | 14.9 (0.11) | 16.6 (0.09) | 19.0 (0.08) | 16.6 (0.10) | 0.6 | -12.6 |
| 25-44 | 20.9 (0.08) | 18.6 (0.09) | 17.9 (0.06) | 18.5 (0.05) | 16.7 (0.04) | -20.1 | -9.7 |
| 45-64 | 21.8 (0.10) | 19.4 (0.09) | 17.4 (0.06) | 17.4 (0.05) | 16.5 (0.06) | -24.3 | -5.2 |
| 65+ | 11.4 (0.08) | 10.9 (0.09) | 9.9 (0.08) | 9.1 (0.06) | 7.6 (0.05) | -33.0 | -16.5 |
| Race/Ethnicity | | | | | | | |
| African American | 26.7 (0.21) | 22.2 (0.21) | 22.9 (0.14) | 21.8 (0.11) | 20.8 (0.14) | -22.1 | -4.6 |
| Asian/PI | 14.9 (0.13) | 11.7 (0.13) | 12.4 (0.09) | 13.5 (0.09) | 12.0 (0.09) | -19.5 | -11.1 |
| Hispanic | 17.4 (0.10) | 14.9 (0.10) | 13.9 (0.08) | 14.5 (0.05) | 13.0 (0.05) | -25.3 | -10.3 |
| Non-Hispanic White | 20.7 (0.5) | 19.6 (0.6) | 18.2 (0.3) | 18.7 (0.4) | 16.8 (0.4) | -18.8 | -10.2 |
| Education | | | | | | | |
| Less than 12 years | 22.5 (1.3) | 18.8 (1.2) | 19.7 (1.1) | 19.8 (0.7) | 17.7 (0.9) | -21.3 | -10.6 |
| High school graduate | 24.2 (0.9) | 22.5 (0.9) | 20.7 (0.7) | 21.2 (0.6) | 20.0 (0.8) | -17.4 | -5.7 |
| Some college | 19.4 (0.8) | 18.1 (0.9) | 16.9 (0.5) | 18.1 (0.5) | 16.0 (0.6) | -17.5 | -11.6 |
| College graduate | 12.5 (0.7) | 11.2 (0.8) | 10.1 (0.4) | 10.2 (0.4) | 9.4 (0.4) | -24.8 | -7.8 |
| Income | | | | | | | |
| <\$10,000 | 25.4 (0.18) | | 23.1 (0.16) | 24.0 (0.18) | 22.5 (0.22) | -11.4 | -6.3 |
| \$10,000-\$20,000 | 22.4 (0.17) | | 22.1 (0.11) | 23.6 (0.11) | 21.9 (0.18) | -2.2 | -7.2 |
| \$20,001-\$30,000 | 22.2 (0.16) | | 20.0 (0.08) | 20.5 (0.09) | 19.7 (0.13) | -11.3 | -3.9 |
| \$30,001-\$50,000 | 19.4 (0.15) | | 17.2 (0.08) | 19.1 (0.09) | 18.3 (0.08) | -5.7 | -4.2 |
| \$50,001-\$75,000 | 19.2 (0.15) | | 15.5 (0.11) | 17.2 (0.08) | 15.5 (0.09) | -19.3 | -9.9 |
| >\$75,000 | 17.3 (0.25) | | 13.2 (0.13) | 15.1 (0.10) | 13.2 (0.08) | -23.7 | -12.6 |
| Unknown | 17.4 (0.13) | | 13.9 (0.09) | 13.4 (0.07) | 13.0 (0.09) | -25.3 | -3.0 |

TABLE ENTRIES ARE STANDARDIZED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1993, 1996, 1999, 2002

| Table A.2.2 Standardized Adult Smoking Prevalence - Males | | | | | | | |
|--|-------------|-------------|-------------|-------------|-------------|-------------------------------|---------------------------------|
| | 1990 % | 1993 % | 1996 % | 1999 % | 2002 % | Factor Change 1990-2002 | Factor Decrease 1999-2002 |
| Males | | | | | | | |
| Age | | | | | | | |
| 18-24 | 19.8 (∂2.0) | 17.4 (∂1.5) | 19.8 (∂1.2) | 23.1 (∂1.1) | 21.0 (∂1.5) | 6.1 | -9.1 |
| 25-44 | 25.5 (∂1.0) | 23.3 (∂1.4) | 21.4 (∂0.8) | 22.5 (∂0.7) | 20.8 (∂0.7) | -18.4 | -7.6 |
| 45-64 | 24.8 (∂1.5) | 22.3 (∂1.4) | 20.3 (∂0.8) | 20.3 (∂0.7) | 19.8 (∂0.9) | -20.2 | -2.5 |
| 65+ | 12.5 (∂1.3) | 11.9 (∂1.3) | 11.1 (∂1.1) | 10.1 (∂0.8) | 8.5 (∂0.7) | -32.0 | -15.8 |
| Race/Ethnicity | | | | | | | |
| African American | 29.1 (∂2.7) | 25.7 (∂2.9) | 24.8 (∂1.8) | 25.3 (∂2.0) | 23.9 (∂1.9) | -17.9 | -5.5 |
| Asian/PI | 22.3 (∂1.8) | 17.8 (∂2.0) | 17.7 (∂1.4) | 19.3 (∂1.4) | 18.0 (∂1.6) | -19.3 | -6.7 |
| Hispanic | 23.2 (∂1.4) | 21.0 (∂1.7) | 19.1 (∂1.2) | 20.2 (∂0.7) | 18.8 (∂1.0) | -19.0 | -6.9 |
| Non-Hispanic White | 21.8 (∂0.5) | 20.5 (∂0.8) | 19.6 (∂0.4) | 20.2 (∂0.6) | 18.7 (∂0.6) | -14.2 | -7.4 |
| Education | | | | | | | |
| Less than 12 years | 29.1 (∂1.8) | 24.8 (∂2.1) | 25.2 (∂1.6) | 26.7 (∂1.2) | 24.8 (∂1.5) | -14.8 | -7.1 |
| High school graduate | 27.8 (∂1.2) | 26.7 (∂1.3) | 24.6 (∂0.9) | 24.9 (∂0.9) | 24.6 (∂1.0) | -11.5 | -1.2 |
| Some college | 21.6 (∂1.1) | 20.4 (∂1.2) | 19.5 (∂0.8) | 20.7 (∂0.8) | 18.8 (∂0.9) | -13.0 | -9.2 |
| College graduate | 14.2 (∂1.1) | 13.1 (∂1.2) | 11.2 (∂0.7) | 11.9 (∂0.7) | 11.2 (∂0.7) | -21.1 | -5.9 |
| Income | | | | | | | |
| <\$10,000 | 29.3 (∂3.8) | | 25.3 (∂2.0) | 25.9 (∂3.1) | 25.2 (∂3.8) | -14.0 | -2.7 |
| \$10,000-\$20,000 | 25.4 (∂2.7) | | 25.4 (∂1.8) | 27.1 (∂1.8) | 24.4 (∂2.5) | -3.9 | -10.0 |
| \$20,001-\$30,000 | 24.5 (∂2.4) | | 22.6 (∂1.4) | 24.1 (∂1.4) | 23.3 (∂2.0) | -4.9 | -3.3 |
| \$30,001-\$50,000 | 22.5 (∂2.1) | | 19.4 (∂1.2) | 22.2 (∂1.3) | 21.6 (∂1.1) | -4.0 | -2.7 |
| \$50,001-\$75,000 | 23.0 (∂3.0) | | 19.1 (∂2.6) | 21.7 (∂1.2) | 19.8 (∂1.7) | -13.9 | -8.8 |
| >\$75,000 | 25.6 (∂2.6) | | 18.0 (∂3.6) | 19.7 (∂2.1) | 17.2 (∂1.6) | -32.8 | -12.7 |
| Unknown | 21.4 (∂2.4) | | 16.6 (∂1.2) | 16.0 (∂1.1) | 16.2 (∂1.3) | -24.3 | 1.3 |

TABLE ENTRIES ARE STANDARDIZED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1993, 1996, 1999, 2002

| Table A.2.3 Standardized Adult Smoking Prevalence - Females | | | | | | | |
|--|-------------|-------------|-------------|-------------|-------------|-------------------------------|---------------------------------|
| | 1990 % | 1993 % | 1996 % | 1999 % | 2002 % | Factor Change 1990-2002 | Factor Decrease 1999-2002 |
| Females | | | | | | | |
| Age | | | | | | | |
| 18-24 | 13.3 (0.14) | 12.2 (0.13) | 13.4 (0.12) | 14.5 (0.10) | 11.9 (0.09) | -10.5 | -17.9 |
| 25-44 | 16.6 (0.08) | 14.0 (0.07) | 14.5 (0.06) | 14.6 (0.05) | 12.7 (0.06) | -23.5 | -13.0 |
| 45-64 | 18.6 (0.12) | 16.6 (0.10) | 14.6 (0.08) | 14.5 (0.07) | 13.4 (0.06) | -28.0 | -7.6 |
| 65+ | 10.2 (0.13) | 10.0 (0.12) | 8.8 (0.08) | 8.3 (0.07) | 7.0 (0.07) | -31.4 | -15.7 |
| Race/Ethnicity | | | | | | | |
| African American | 24.6 (0.27) | 19.7 (0.23) | 21.3 (0.19) | 19.1 (0.13) | 18.1 (0.18) | -26.4 | -5.2 |
| Asian/PI | 7.6 (0.14) | 5.8 (0.15) | 7.2 (0.11) | 8.2 (0.10) | 6.8 (0.09) | -10.5 | -17.1 |
| Hispanic | 11.6 (0.13) | 8.9 (0.10) | 8.9 (0.08) | 8.9 (0.06) | 7.2 (0.05) | -37.9 | -19.1 |
| Non-Hispanic White | 18.8 (0.07) | 18.0 (0.07) | 16.6 (0.05) | 16.9 (0.04) | 15.0 (0.06) | -20.2 | -11.2 |
| Education | | | | | | | |
| Less than 12 years | 16.3 (0.15) | 12.9 (0.12) | 14.1 (0.11) | 12.9 (0.08) | 10.8 (0.09) | -33.7 | -16.3 |
| High school graduate | 19.8 (0.10) | 18.1 (0.09) | 16.7 (0.08) | 17.3 (0.07) | 15.8 (0.09) | -20.2 | -8.7 |
| Some college | 16.0 (0.10) | 15.2 (0.10) | 14.2 (0.07) | 15.5 (0.06) | 13.6 (0.07) | -15.0 | -12.3 |
| College graduate | 10.5 (0.08) | 8.8 (0.09) | 8.8 (0.06) | 8.3 (0.05) | 7.5 (0.04) | -28.6 | -9.6 |
| Income | | | | | | | |
| <\$10,000 | 19.2 (0.23) | | 17.8 (0.21) | 18.7 (0.21) | 17.8 (0.27) | -7.3 | -4.8 |
| \$10,000-\$20,000 | 19.0 (0.17) | | 16.6 (0.11) | 18.1 (0.13) | 17.0 (0.21) | -10.5 | -6.1 |
| \$20,001-\$30,000 | 17.4 (0.18) | | 15.8 (0.11) | 15.4 (0.10) | 15.0 (0.13) | -13.8 | -2.6 |
| \$30,001-\$50,000 | 15.4 (0.17) | | 14.6 (0.10) | 15.2 (0.09) | 14.1 (0.10) | -8.4 | -7.2 |
| \$50,001-\$75,000 | 15.1 (0.26) | | 12.8 (0.15) | 13.2 (0.10) | 11.6 (0.10) | -23.2 | -12.1 |
| >\$75,000 | 15.0 (0.67) | | 10.2 (0.16) | 12.3 (0.16) | 10.0 (0.11) | -33.3 | -18.7 |
| Unknown | 12.4 (0.14) | | 10.9 (0.10) | 10.3 (0.09) | 9.8 (0.10) | -21.0 | -4.9 |

TABLE ENTRIES ARE STANDARDIZED (2002) PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1993, 1996, 1999, 2002

2. Demographic Comparison of Groups of Current Smokers in 2002

In 2002, only 8.2±0.9% of all current smokers smoked 25 or more cigarettes/day (heavy smokers). The higher levels of consumption among the older cohorts in the analyses of Section 2 of this chapter are also apparent in **Table A.2.4**. A much large percentage of smokers age 50 and older were heavy smokers, and correspondingly a much higher percentage of smokers 18 to 34 years were light daily or non-daily smokers. Also, significantly more males were heavy smokers, and a much higher percentage of Non-Hispanic White smokers were heavier smokers than in other racial/ethnic groups. A very high percentage of smokers who are college graduates were non-daily smokers.

| Table A.2.4 Demographics of Daily Smokers by Consumption Level (2002) | | | | |
|--|---------------------------|---------------------------------|----------------------------|--------------------------|
| | Heavy (25+) N=481 % | Moderate (15-24) N=1728 % | Light (<15) N=1844 % | Non-Daily N=1445 % |
| | 8.2 (±0.9) | 29.9 (±1.5) | 33.7 (±1.6) | 28.2 (±1.5) |
| Gender | | | | |
| Male | 9.1 (±1.4) | 30.9 (±2.3) | 30.1 (±2.1) | 29.9 (±2.0) |
| Female | 6.8 (±1.1) | 28.2 (±2.1) | 39.4 (±2.4) | 25.6 (±1.7) |
| Age | | | | |
| 18-34 | 3.0 (±0.9) | 21.9 (±1.8) | 36.2 (±2.4) | 38.9 (±2.4) |
| 35-49 | 9.1 (±1.5) | 34.1 (±2.6) | 33.0 (±2.6) | 23.8 (±2.5) |
| 50+ | 15.2 (±2.4) | 36.4 (±3.3) | 30.8 (±3.0) | 17.6 (±3.5) |
| Race/Ethnicity | | | | |
| Hispanic | 1.8 (±1.1) | 16.3 (±3.0) | 38.3 (±3.5) | 43.6 (±3.8) |
| Non-Hispanic White | 11.8 (±1.4) | 38.5 (±1.9) | 28.0 (±1.9) | 21.7 (±1.6) |
| African American | 3.4 (±2.3) | 23.5 (±4.3) | 51.6 (±5.5) | 21.5 (±4.7) |
| Asian/PI | 4.0 (±2.4) | 20.5 (±4.7) | 40.9 (±7.0) | 34.7 (±7.1) |
| Education | | | | |
| < 12 | 9.4 (±1.3) | 30.4 (±1.9) | 35.9 (±2.4) | 24.3 (±2.1) |
| 12 | 7.4 (±4.4) | 39.0 (±7.8) | 33.1 (±9.4) | 20.5 (±5.8) |
| 13-15 | 7.5 (±1.2) | 30.4 (±2.1) | 32.8 (±2.2) | 29.3 (±2.9) |
| 16+ | 6.2 (±1.5) | 25.5 (±3.6) | 28.8 (±3.6) | 39.6 (±3.6) |
| Income | | | | |
| < \$10,000 | 6.7 (±2.3) | 27.9 (±5.4) | 39.2 (±6.0) | 26.3 (±5.7) |
| \$10,001-\$20,000 | 5.5 (±2.2) | 29.1 (±3.6) | 36.9 (±4.2) | 28.5 (±4.2) |
| \$20,001-\$30,000 | 10.4 (±3.5) | 28.6 (±4.0) | 32.9 (±3.9) | 28.1 (±4.4) |
| \$30,001-\$50,000 | 8.8 (±2.1) | 32.0 (±4.0) | 35.1 (±3.4) | 24.0 (±2.8) |
| \$50,001 - \$75,000 | 8.4 (±2.3) | 29.5 (±3.9) | 31.8 (±3.5) | 30.3 (±4.5) |
| Over \$75,000 | 8.3 (±1.8) | 32.0 (±3.3) | 28.8 (±2.6) | 30.9 (±3.1) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 2002

3. Adult Use of Other Tobacco Products-Demographics

Table A.2.5 shows pipe and smokeless tobacco use in adult males by age. In 1990, males aged 45 and older were significantly more likely to smoke pipes than younger males, but there were no significant age differences in 2002. In contrast, smokeless tobacco use was significantly more common among males younger than 45 years in all survey years.

Table A.2.6 shows the percentages of current cigar users for both genders by age and smoking status. Particularly in 1996, younger women appeared to be using cigars, although this percentage had declined (not significantly) in 1999 and 2002. Women who were current cigarette smokers accounted for nearly all current cigar use in all years.

Among males, cigar use declined significantly between 1996 and 2002. In contrast to females, male never and former smokers accounted for a substantial proportion of current cigar use in each year. While never and former smokers appear to be using cigars less in 2002 than in 1996 (marginally significant declines), use among current smokers remains high.

| Table A.2.5 | | | | |
|--|-------------|-------------|-------------|-------------|
| Current Pipe and Smokeless Tobacco Use in Adult Males by Age. | | | | |
| | 1990 | 1996 | 1999 | 2002 |
| | % | % | % | % |
| Pipes | | | | |
| Age | | | | |
| 18-24 | 1.2 (0.5) | 1.6 (0.8) | 1.2 (0.7) | 1.2 (0.5) |
| 25-44 | 1.8 (0.6) | 0.9 (0.3) | 1.1 (0.3) | 0.9 (0.4) |
| 45-64 | 3.8 (0.9) | 1.8 (0.7) | 2.3 (0.1.0) | 1.2 (0.7) |
| 65+ | 3.3 (0.1.0) | 2.6 (0.1.8) | 1.5 (0.1.0) | 1.4 (0.1.1) |
| Smokeless | | | | |
| Age | | | | |
| 18-24 | 3.3 (0.9) | 4.1 (0.1.3) | 3.4 (0.1.1) | 2.5 (0.6) |
| 25-44 | 2.5 (0.6) | 3.2 (0.7) | 3.4 (0.8) | 2.3 (0.6) |
| 45-64 | 1.3 (0.5) | 1.2 (0.6) | 0.9 (0.5) | 0.9 (0.5) |
| 65+ | 0.5 (0.4) | 0.4 (0.4) | 0.6 (0.6) | 0.6 (0.4) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1990, 1996, 1999, 2002

| Table A.2.6 | | | | |
|--|--------------|--------------|--------------|--------------|
| Adult Current Cigar Use by Age and Smoking Status within Gender | | | | |
| | 1990 | 1996 | 1999 | 2002 |
| | % | % | % | % |
| Males overall | 4.8 (0.7) | 8.8 (0.7) | 8.1 (0.7) | 7.1 (0.8) |
| Age | | | | |
| 18-24 | 4.0 (0.1.5) | 12.3 (0.2.7) | 10.5 (0.2.2) | 9.4 (0.1.2) |
| 25-44 | 5.4 (0.9) | 11.0 (0.1.3) | 9.2 (0.1.3) | 7.9 (0.1.3) |
| 45-64 | 4.8 (0.8) | 6.2 (0.1.3) | 7.0 (0.1.1) | 5.9 (0.1.4) |
| 65+ | 3.8 (0.1.8) | 1.8 (0.1.2) | 2.7 (0.1.3) | 3.5 (0.1.4) |
| Smoking Status | | | | |
| Never | 2.2 (0.8) | 7.5 (0.1.4) | 5.0 (0.9) | 5.1 (0.1.0) |
| Former | 3.9 (0.9) | 6.5 (0.1.2) | 7.8 (0.1.4) | 5.4 (0.1.1) |
| Current | 10.9 (0.1.3) | 14.8 (0.1.4) | 15.4 (0.1.5) | 14.6 (0.1.3) |
| Females overall | 0.2 (0.1) | 1.1 (0.3) | 0.7 (0.2) | 1.0 (0.3) |
| Age | | | | |
| 18-24 | 0.3 (0.4) | 3.1 (0.1.4) | 1.5 (0.9) | 1.9 (0.6) |
| 25-44 | 0.3 (0.2) | 1.3 (0.4) | 1.1 (0.4) | 1.3 (0.6) |
| 45-64 | 0.2 (0.2) | 0.3 (0.3) | 0.3 (0.2) | 0.5 (0.3) |
| 65+ | 0.1 (0.1) | 0 | 0 | 0.3 (0.3) |
| Smoking Status | | | | |
| Never | 0.1 (0.1) | 0.8 (0.4) | 0.3 (0.2) | 0.5 (0.4) |
| Former | 0.1 (0.2) | 0.5 (0.2) | 0.6 (0.3) | 0.6 (0.4) |
| Current | 0.9 (0.6) | 2.9 (0.7) | 2.6 (0.8) | 3.9 (0.9) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1990, 1993, 1996, 1999, 2002

4. Adolescent Use of Tobacco Products-Demographics

Table A.2.7 shows adolescents' ever use of any tobacco products including cigarettes. Boys were significantly more likely to have ever used other tobacco products than girls, and product use increased significantly with age. Also, Non-Hispanic White adolescent boys were, in most cases, significantly more likely to have used another tobacco product compared to other racial/ethnic groups. Other tobacco product use was significantly more prevalent among adolescents with average or below average school performance.

| Table A.2.7 Any Use of Tobacco Among Adolescents (2002 Teen CTS) | | | | | | | |
|---|-----------------|-----------------------------------|-------------|------------|---------------------------------|-------------------------|---------------------|
| | Cigarettes % | Chewing Tobacco/ Snuff % | Cigars % | Bidis % | Any Tobacco Product Use % | Population Size n | Sample Size n |
| Total | 15.9 | 2.3 | 8.8 | 3.3 | 18.3 | 3,226,112 | 5,857 |
| Gender | | | | | | | |
| Boys | 16.4 | 3.9 | 11.0 | 3.5 | 19.9 | 1,662,391 | 2,947 |
| Girls | 15.4 | 0.6 | 6.4 | 3.0 | 16.7 | 1,563,721 | 2,910 |
| Age | | | | | | | |
| 12-13 | 4.1 | 0.3 | 2.0 | 0.3 | 5.1 | 1,147,081 | 1,967 |
| 14-15 | 14.1 | 1.6 | 6.8 | 2.2 | 16.6 | 1,053,434 | 1,953 |
| 16-17 | 31.0 | 5.4 | 18.4 | 7.6 | 35.0 | 1,025,597 | 1,937 |
| Race/Ethnicity | | | | | | | |
| Hispanic | 16.6 | 1.3 | 6.9 | 3.0 | 18.3 | 1,168,266 | 1,843 |
| Non-Hispanic White | 17.5 | 3.9 | 12.0 | 4.0 | 21.2 | 1,207,052 | 2,772 |
| African American | 9.2 | 0.9 | 6.8 | 2.9 | 11.8 | 242,692 | 386 |
| Asian/PI | 11.7 | 0.6 | 5.0 | 1.6 | 12.8 | 441,779 | 563 |
| Other | 20.9 | 4.4 | 11.1 | 4.7 | 22.4 | 166,323 | 293 |
| School Performance | | | | | | | |
| Much better than average | 9.6 | 1.1 | 6.6 | 2.6 | 11.6 | 747,086 | 1,358 |
| Better than average | 13.3 | 2.1 | 6.6 | 2.2 | 15.5 | 1,197,400 | 2,211 |
| Average and below | 22.0 | 3.3 | 12.0 | 4.7 | 24.9 | 1,281,626 | 2,288 |
| Household Income | | | | | | | |
| Missing | 13.8 | 3.4 | 6.9 | 2.5 | 16.8 | 234,285 | 404 |
| \$10,000 or less | 21.5 | 1.8 | 8.6 | 2.9 | 22.2 | 200,614 | 299 |
| \$10,001 to \$20,000 | 14.7 | 0.8 | 6.2 | 2.6 | 16.0 | 333,259 | 536 |
| \$20,001 to \$30,000 | 17.5 | 2.0 | 7.5 | 3.7 | 19.7 | 376,583 | 617 |
| \$30,001 to \$50,000 | 16.9 | 2.4 | 8.2 | 3.8 | 18.9 | 544,929 | 931 |
| \$50,001 to \$75,000 | 18.3 | 3.2 | 11.2 | 3.8 | 20.7 | 520,014 | 1,008 |
| over \$75,000 | 13.4 | 2.3 | 9.6 | 3.0 | 16.7 | 1,016,428 | 2,062 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 2002

Table A.2.7 (cont'd)
Any Use of Tobacco Among Adolescents (2002 Teen CTS)

| | Cigarettes % | Chewing Tobacco/ Snuff % | Cigars % | Bidis % | Any Tobacco Product Use % | Population Size n | Sample Size n |
|---------------------------|-----------------|-----------------------------------|-------------|------------|---------------------------------|-------------------------|---------------------|
| Males | | | | | | | |
| Age | | | | | | | |
| 12-13 | 4.7 | 0.5 | 2.9 | 0.5 | 6.1 | 582,416 | 970 |
| 14-15 | 13.2 | 2.3 | 8.1 | 2.0 | 17.0 | 559,008 | 1,008 |
| 16-17 | 32.9 | 9.5 | 23.0 | 8.4 | 38.5 | 520,967 | 969 |
| Race/Ethnicity | | | | | | | |
| Hispanic | 17.8 | 2.3 | 9.0 | 3.7 | 20.1 | 575,049 | 861 |
| Non-Hispanic White | 18.4 | 6.7 | 15.4 | 4.1 | 23.9 | 638,791 | 1,442 |
| African American | 10.3 | 2.0 | 8.5 | 2.6 | 14.5 | 112,176 | 179 |
| Asian/PI | 8.0 | 0.6 | 4.2 | 1.5 | 9.4 | 240,700 | 303 |
| Other | 22.5 | 5.7 | 12.6 | 4.2 | 25.2 | 95,675 | 162 |
| School Performance | | | | | | | |
| Much better than average | 9.3 | 2.1 | 8.0 | 2.8 | 12.8 | 354,628 | 622 |
| Better than average | 13.1 | 3.6 | 8.6 | 1.8 | 16.1 | 596,603 | 1,088 |
| Average and below | 22.7 | 5.1 | 14.4 | 5.3 | 26.7 | 711,160 | 1,237 |
| Household Income | | | | | | | |
| Missing | 14.3 | 5.9 | 8.6 | 2.2 | 18.8 | 117,665 | 199 |
| \$10,000 or less | 23.2 | 3.0 | 8.3 | 3.4 | 24.6 | 99,410 | 147 |
| \$10,001 to \$20,000 | 15.8 | 1.3 | 8.7 | 3.2 | 17.7 | 170,572 | 261 |
| \$20,001 to \$30,000 | 21.6 | 3.5 | 11.7 | 4.8 | 25.1 | 195,614 | 310 |
| \$30,001 to \$50,000 | 15.7 | 4.1 | 9.8 | 4.1 | 19.0 | 266,774 | 444 |
| \$50,001 to \$75,000 | 19.1 | 5.3 | 14.0 | 5.2 | 22.4 | 280,418 | 530 |
| over \$75,000 | 12.8 | 3.9 | 11.4 | 2.1 | 17.2 | 531,938 | 1,056 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 2002

Table A.2.7 (cont'd)
Any Use of Tobacco Among Adolescents (2002 Teen CTS)

| | Cigarettes % | Chewing Tobacco/ Snuff % | Cigars % | Bidis % | Any Tobacco Product Use % | Population Size n | Sample Size n |
|---------------------------|-----------------|-----------------------------------|-------------|------------|---------------------------------|-------------------------|---------------------|
| Age | | | | | | | |
| 12-13 | 3.4 | 0.1 | 1.0 | 0.2 | 4.0 | 564,665 | 997 |
| 14-15 | 15.2 | 0.7 | 5.3 | 2.4 | 16.1 | 494,426 | 945 |
| 16-17 | 29.1 | 1.1 | 13.6 | 6.9 | 31.4 | 504,630 | 968 |
| Race/Ethnicity | | | | | | | |
| Hispanic | 15.5 | 0.3 | 4.8 | 2.3 | 16.5 | 593,217 | 982 |
| Non-Hispanic White | 16.4 | 0.8 | 8.2 | 3.9 | 18.2 | 568,261 | 1,330 |
| African-American | 8.3 | 0.0 | 5.4 | 3.1 | 9.5 | 130,516 | 207 |
| Asian/PI | 16.2 | 0.6 | 6.0 | 1.9 | 16.8 | 201,079 | 260 |
| Other | 18.6 | 2.6 | 9.1 | 5.4 | 18.6 | 70,648 | 131 |
| School Performance | | | | | | | |
| Much better than average | 9.9 | 0.2 | 5.3 | 2.4 | 10.5 | 392,458 | 736 |
| Better than average | 13.6 | 0.5 | 4.7 | 2.5 | 14.9 | 600,797 | 1,123 |
| Average and below | 21.2 | 1.0 | 9.0 | 4.0 | 22.8 | 570,466 | 1,051 |
| HOUSEHOLD INCOME | | | | | | | |
| Missing | 13.2 | 0.9 | 5.2 | 2.8 | 14.7 | 116,620 | 205 |
| \$10,000 or less | 19.8 | 0.7 | 8.8 | 2.4 | 19.8 | 101,204 | 152 |
| \$10,001 to \$20,000 | 13.5 | 0.3 | 3.6 | 1.9 | 14.3 | 162,687 | 275 |
| \$20,001 to \$30,000 | 13.0 | 0.4 | 2.9 | 2.5 | 13.7 | 180,969 | 307 |
| \$30,001 to \$50,000 | 18.0 | 0.9 | 6.6 | 3.5 | 18.8 | 278,155 | 487 |
| \$50,001 to \$75,000 | 17.4 | 0.7 | 8.0 | 2.0 | 18.7 | 239,596 | 478 |
| over \$75,000 | 14.2 | 0.6 | 7.7 | 4.1 | 16.2 | 484,490 | 1,006 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 2002

Use of other tobacco products is highly associated with cigarette use. **Table A.2.8** shows ever use of other tobacco products by adolescents' experience with cigarettes in 2002. Other tobacco product use is very rare among committed never smokers, but slightly higher (in some cases significantly higher) among susceptible never smokers. However, among those who are current experimenters or former users, other product use was significantly more common than among the never smokers. Further, rates of use among current established smokers were very high (exceeded 80% for cigars among boys), and significantly higher than in all other smoking-experience groups.

| Table A.2.8 Adolescent Experimentation (Ever Use) of Other Tobacco Products by Cigarette Smoking Experience | | | | |
|--|-------------|--------------|--------------|-------------------------------|
| | 1996 % | 1999 % | 2002 % | Factor Change 1999 to 2002 |
| Smokeless (boys only) | | | | |
| Committed Never Smokers | 1.8 (00.8) | 0.9 (00.8) | 0.6 (00.3) | -33.3 |
| Susceptible Never Smokers | 1.9 (01.1) | 1.3 (00.8) | 1.6 (00.7) | 23.1 |
| Noncurrent (Former Users) | 17.0 (02.8) | 9.5 (02.2) | 9.9 (03.4) | 4.2 |
| Current Experimenters | 22.3 (06.0) | 20.2 (08.4) | 21.4 (010.5) | 5.9 |
| Current Established Smokers | 51.5 (08.7) | 45.0 (010.1) | 44.0 (010.3) | -2.2 |
| Cigars (overall) | | | | |
| Committed Never Smokers | 1.7 (00.5) | 1.4 (00.5) | 1.5 (00.5) | 7.1 |
| Susceptible Never Smokers | 2.7 (00.9) | 3.3 (00.8) | 2.0 (00.7) | -39.4 |
| Noncurrent (Former Users) | 28.0 (03.3) | 27.6 (03.5) | 30.5 (03.1) | 10.5 |
| Current Experimenters | 48.2 (06.0) | 52.6 (07.6) | 50.8 (011.4) | -3.4 |
| Current Established Smokers | 74.5 (05.0) | 77.6 (05.9) | 76.4 (07.9) | -1.5 |
| Cigars (boys only) | | | | |
| Committed Never Smokers | 2.7 (01.0) | 1.6 (00.9) | 2.7 (01.1) | 68.8 |
| Susceptible Never Smokers | 3.6 (01.4) | 4.2 (01.5) | 2.7 (01.0) | -35.7 |
| Noncurrent (Former Users) | 36.5 (05.5) | 34.5 (04.6) | 36.2 (04.9) | 4.9 |
| Current Experimenters | 60.9 (08.3) | 67.9 (011.3) | 58.2 (015.6) | -14.3 |
| Current Established Smokers | 86.3 (06.3) | 84.8 (06.6) | 80.8 (010.5) | -4.7 |
| Cigars (girls only) | | | | |
| Committed Never Smokers | 0.9 (00.7) | 1.2 (00.6) | 0.4 (00.3) | -66.7 |
| Susceptible Never Smokers | 1.6 (00.8) | 2.1 (01.0) | 1.0 (00.8) | -52.4 |
| Noncurrent (Former Users) | 17.6 (02.9) | 19.7 (04.4) | 24.3 (04.4) | 23.4 |
| Current Experimenters | 30.3 (08.7) | 35.1 (010.9) | 39.1 (016.9) | 11.4 |
| Current Established Smokers | 62.1 (07.3) | 69.5 (09.9) | 72.0 (011.6) | 3.6 |
| Bidis (overall) | | | | |
| Committed Never Smokers | | 0.2 (00.2) | 0 (00.1) | -100 |
| Susceptible Never Smokers | | 0.7 (00.4) | 0.3 (00.3) | -57.1 |
| Noncurrent (Former Users) | | 15.2 (02.9) | 10.7 (02.4) | -29.6 |
| Current Experimenters | | 30.6 (06.0) | 19.3 (06.5) | -36.9 |
| Current Established Smokers | | 69.7 (08.0) | 51.2 (010.5) | -26.5 |
| Bidis (boys only) | | | | |
| Committed Never Smokers | | 0.3 (00.3) | 0 (00) | -100.0 |
| Susceptible Never Smokers | | 0.8 (00.6) | 0.3 (00.3) | -62.5 |
| Noncurrent (Former Users) | | 16.6 (04.4) | 10.1 (03.3) | -39.2 |
| Current Experimenters | | 41.2 (09.1) | 24.0 (09.8) | -41.7 |
| Current Established Smokers | | 70.2 (010.6) | 55.6 (012.2) | -20.8 |
| Bidis (girls only) | | | | |
| Committed Never Smokers | | 0.2 (00.3) | 0.1 (00.1) | -50.0 |
| Susceptible Never Smokers | | 0.7 (00.5) | 0.35 (00.5) | -50.0 |
| Noncurrent (Former Users) | | 13.5 (03.4) | 11.3 (03.3) | -16.3 |
| Current Experimenters | | 18.6 (07.2) | 11.9 (09.3) | -36.0 |
| Current Established Smokers | | 69.2 (010.0) | 46.9 (015.4) | -32.2 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
 SOURCE: CTS 1996, 1999, 2002

GLOSSARY

Adolescents

Current smoker – has smoked a cigarette on at least 1 day in the past month.

Adults

Current smoker – has smoked at least 100 cigarettes in his or her lifetime and smokes now (old question) or now either everyday or some days (new question) at the time of the survey.

Daily smoker – a *current smoker* who has smoked on every day of the past month (old question sequence) or who now smokes everyday (new question).

Ever smoker – has smoked at least 100 cigarettes in his or her lifetime.

Former smoker – has smoked at least 100 cigarettes in lifetime, but does not smoke now (old question) or now smokes not at all (new question).

Heavy smoker – a *current smoker* who smokes 25 or more cigarettes a day.

Moderate smoker – a *current smoker* who smokes between 15 and 24 cigarettes a day.

Light smoker – a *current smoker* who smokes fewer than 15 cigarettes a day.

Never smoker – has smoked fewer than 100 cigarettes in his or her lifetime.

Non-daily smoker – a *current smoker* who smoked on at least 1 day but less than 30 days in the past month (old question sequence) or who says he or she now smokes some days (new question).

REFERENCES

- Centers for Disease Control (CDC). Tobacco use among middle and high school students – United States, 1999. *MMWR*. **2000**;49(3):49-53.
- Fagerstrom KO, Schneider NG. Measuring nicotine dependence: a review of the Fagerstrom Tolerance Questionnaire. *J Behav Med*. **1989**;12:159-182.
- Gilpin EA, Pierce JP, Berry CC, White MM. *Technical Report on Analytic Methods and Approaches Used in the 2002 California Tobacco Survey Analysis: Vol 3: Methods Used for Final Report*. La Jolla, CA: University of California, San Diego; **2004**.
- Gilpin EA, Pierce JP. Concurrent use of tobacco products by California adolescents. *Prev Med*. **2003**;36:575-584.
- Gilpin EA, Pierce JP. Patterns of cigar use in California in 1999. *Am J Prev Med*. **2001**;21:325-328.
- Gilpin EA, Pierce JP. The California Tobacco Control Program and potential harm reduction through reduced cigarette consumption. *Nicotine & Tobacco Research*. **2002**;4(Suppl.2):S157-S166.
- Henningfield JE, Hariharan M, Kozlowski LJ. Nicotine content and health risks of cigars. *JAMA*. **1996**;276:1857-1858.
- Pierce JP, Fiore MC, Novotny TE, Hatziaandreu EJ, Davis RM. Trends in Cigarette Smoking in the United States. Educational Differences are Increasing. *JAMA*. **1989**;261:56-60.
- Rickert WS, Robinson JC, Bray DF, Rogers B, Collishaw NE. Characterization of tobacco products: A comparative study of the tar, nicotine, and carbon monoxide yields of cigars, manufactured cigarettes, and cigarettes made from fine-cut tobacco. *Prev Med*. **1985**;14:226-233.
- Scherer G. Smoking behavior and compensation: a review of the literature. *Psychopharmacol*. **1999**;145:1-20.
- Tobacco Education and Research Oversight Committee (TEROC). Toward a Tobacco-Free California 2003-2005. The Myth of Victory. Master Plan; January, **2003**.
- US Bureau of the Census. Census 2000 Special Reports. *State-to-State Migration Flows: 1995 to 2000*; **2003**. Web: <http://www.census.gov>

US Department of Health and Human Services (USDHHS). *Cigars. Health Effects and Trends. Smoking and Tobacco Control Monograph 9*. Bethesda, MD: US Department of Health and Human Services, Public Health Service, National Institutes of Health, National Cancer Institute; **1998**.

US Department of Health and Human Services (USDHHS). *Reducing the Health Consequences of Smoking: 25 Years of Progress. A Report of the Surgeon General*. USDHHS, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; **1989**. (DHHS Pub. No. (CDC) 89-8411)

Chapter 3

Young Adults: Smoking Prevalence, Uptake Patterns, and Vulnerability to Smoking

| | |
|--|-------------|
| KEY FINDINGS | 3-2 |
| Introduction | 3-3 |
| 1. Trends in Smoking Prevalence Among Young Adults..... | 3-4 |
| Overall and by Gender | 3-4 |
| Age | 3-5 |
| Race/Ethnicity | 3-6 |
| Education | 3-6 |
| 2. Changes in the Uptake Pattern in Age Groups of Young Adults | 3-7 |
| Age at First Cigarette | 3-7 |
| Progression to Regular Smoking | 3-8 |
| 3. Smoking Behavior Among Young Adults in 2002 | 3-11 |
| Categorizing Smoking Behavior | 3-11 |
| Vulnerability to Future Smoking | 3-13 |
| 4. Summary | 3-17 |
| APPENDIX | 3-19 |
| 1. Smoking Prevalence in Demographic Groups of Young Adults..... | 3-19 |
| 2. Population Prevalence of Smoking Status Categories in Demographic Subgroups | 3-19 |
| GLOSSARY | 3-25 |
| REFERENCES..... | 3-26 |

Chapter

3

KEY FINDINGS

Young Adults: Smoking Prevalence, Uptake Patterns and Vulnerability To Smoking

- 1) Smoking prevalence among young Californians (18-29 years) decreased by a factor of 16.9% since 1999** (from 18.7% in 1999 to 17.0% in 2002), following a steady increase during the mid-1990s.
- 2) Smoking prevalence differed substantially among demographic groups of young adults.** Prevalence rates for young women were lower than those of young men. Between 1999 and 2002, smoking prevalence decreased the most in women and young adults 18-24 years. African Americans showed an abrupt decline from 1990 to 1993 and their prevalence remained low thereafter. Those with no college education had higher prevalence than college attenders, but unlike the latter group, their prevalence declined significantly from 1990 to 2002.
- 3) The age at which regular smoking commenced increased in recent years compared to the early 1990s.** In 1990, 33.2 % of 22- to 25-year-olds started regular smoking at 18 years of age or older compared to 43.8% in 2002.
- 4) A majority of young adult daily smokers were light smokers (<15 cigarettes/day) in 2002 (60.0%).** Also, over half of current non-daily smokers had never smoked daily (55.7%). Whether they will be able to maintain this status or go on to become daily smokers is unknown.
- 5) About one third (33.0%) of young adults who had smoked at least 100 cigarettes in their lifetime reported that they were no longer smoking, but nearly 60% (59.6%) of these young adults were still vulnerable to relapse:** all 27.9% of those who quit regular smoking in the previous year, and 43.9% of those quit for more than a year were considered vulnerable to relapse (thought about smoking or situations in which they might smoke).
- 6) Some young adults appeared still to be experimenting (smoked 1-99 cigarettes in lifetime) and at risk to become future smokers.** Almost 30% are considered experimenters (29.3%): just under half of these experimenters (47.8%) had not smoked in the past year and said they definitely would not smoke in the next year, but nearly one quarter (23.2%) were current experimenters, and the remainder had smoked in the past year. Thus, just over half (52.2%) of ever experimenters were still at risk for future smoking.
- 7) Only 9.0% of never smokers (43.4% of the young adults) were still susceptible to smoking** (do not rule out trying a cigarette soon or in the next year).
- 8) As they get older, many young adults may succeed in avoiding a smoking addiction:** the percentages of never smokers and experimenters at risk for becoming smokers declined markedly with age. Although the percentage of former established smokers vulnerable to relapse also declined with age, the decline was smaller, and many in the oldest age group (26-29 years) remained vulnerable to relapse. Thus, there is a large fraction of young adults that the tobacco industry can influence to smoke, or the public health community can influence not to smoke.

Young Adults: Smoking Prevalence, Uptake Patterns, and Vulnerability to Smoking

Introduction

Young adulthood may be characterized as a period of volatility. People leave home, enter the military or college, join the workforce, become couples and break up, all stressful major life events. Smoking initiation is generally thought to occur mostly during adolescence (USDHHS, 1994), so there is little data describing young adult smoking uptake behavior. Cigarette use among young adults may be as volatile as other aspects of their life, until they either cease cigarette use altogether or become long-term dependent smokers. During young adulthood, therefore, smokers are open to influences that may either encourage or discourage the transition to dependent smoking (Schofield et al., 1998). Both the tobacco industry and the public health community have a vested interest in supplying the definitive influences.

The results of several national studies monitoring tobacco use among young people (Wechsler et al., 1998; Rigotti et al., 2000; Johnson et al., 2001) indicated that smoking prevalence among young adults increased during the mid to late 1990s. Other analyses of national data suggested that the increase in smoking prevalence observed in young adults was due both to cohorts of adolescents entering young adulthood with higher percentages of established smokers, and to increased uptake of smoking in young adults (Lantz, 2003). More recent data suggests that smoking prevalence in young adults is again declining (Johnson et al., 2003). This recent decline may be because of continued lower smoking rates among new cohorts of adolescents now reaching adulthood (see Chapters 2 and 7), or perhaps because young adults are not as involved with smoking as previously.

Today's young Californians (18 to 29 years of age) matured in a community that increasingly restricted smoking in public places. Most entered their teens between 1983 and 1996. In addition, this cohort has been exposed to mass media anti-tobacco campaigns promoting protection of nonsmokers from secondhand smoke, discouraging adolescents from initiating smoking, encouraging adult quitting, and exposing the tactics of the tobacco industry. However, the tobacco industry also targeted this cohort as adolescents with its advertising and promotional practices (Perry 1999; Pollay 2000; Cummings et al., 2002). The cartoon character, Joe Camel, debuted in 1989 but had mostly disappeared by 1997, and tobacco promotional items, attractive to adolescents and young adults (Gilpin et al., 1997) were widely available from 1991 until 1998 (see Chapter 10).

Section 1 of this chapter looks at trends in current smoking prevalence among young adults in California using California Tobacco Survey (CTS) data from 1990 through 2002, overall and by demographic subgroups. Section 2 explores age-specific patterns of when experimenters first smoked, the percentages transitioning to established smoking (report

smoking at least 100 cigarettes in lifetime), and the age when regular smoking commenced. Section 3 categorizes young adults in the 2002 CTS (n=9,364) by smoking experience and highlights the volatility of smoking during these years. Section 4 provides a summary of the chapter findings.

1. Trends in Smoking Prevalence Among Young Adults

Since 1999, the CTS screener surveys have established smoking status with two questions:

Have you smoked at least 100 cigarettes during your lifetime?

and

Do you smoke cigarettes everyday, some days or not at all?

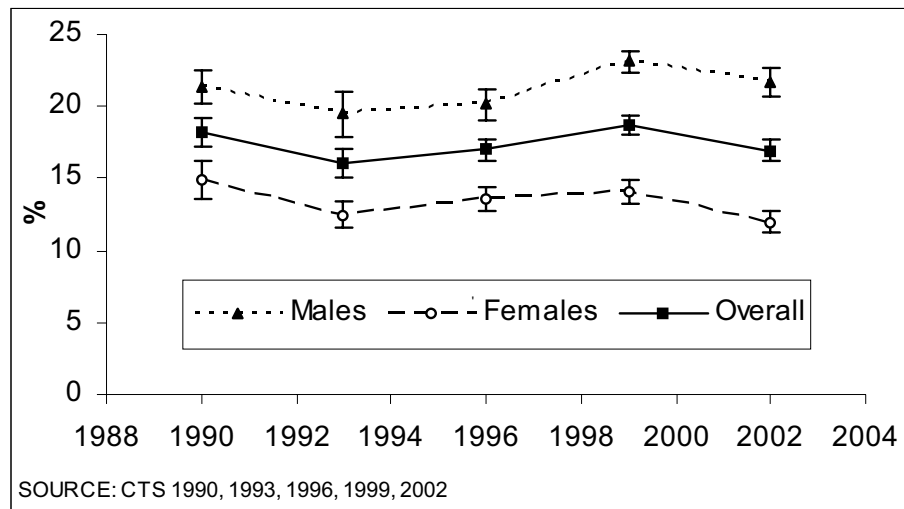
In 1990, 1993, and 1996 the second question was asked slightly differently: *Do you smoke cigarettes now?* Respondents indicating that they had smoked 100 cigarettes in their life are considered **established smokers**. If these smokers indicated that they smoked every day or some days or smoked now they are defined as **current established smokers**. As explained in Chapter 2, the change in definition may have captured a few more non-daily smokers. People who answer ‘no’ to the first question are considered **never smokers**, and **former smokers** if they answer ‘yes’ to the first question and ‘not at all’ to the second.

Overall and by Gender

Smoking prevalence among young adults was 17.0% in 2002, a decline by a factor of 16.9% from 1999.

Figure 3.1 shows the prevalence of current smoking in young adults (standardized by age, race/ethnicity, and education) overall and among males and females from 1990 to 2002. The numbers plotted in this figure and the others in this section are presented in Appendix Table A.3.1.

Figure 3.1: Trends in Current Smoking Prevalence Among Young Adults 18-29 Years

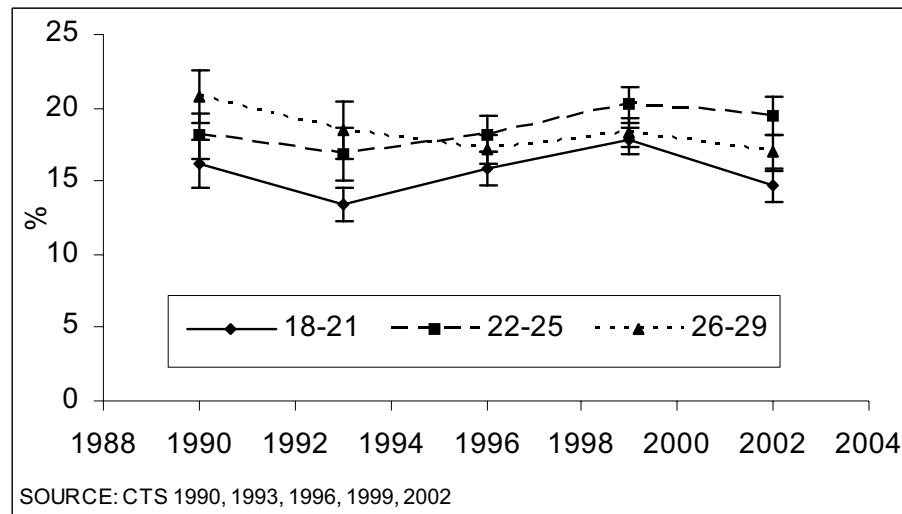


Prevalence declined between 1990 and 1993, but increased again to 1990 levels by 1999, as occurred nationally during this period. However, in 2002, prevalence among young adults had declined from the 1999 level, by a factor of 6.6%, which was only marginally significant. While young adult females in 2002 showed significantly lower prevalence rates than they did in 1990, by a factor of 19.5%, young adult males were smoking at the same rate in 2002 as they had in 1990. In 2002, young adult current smokers 18 to 29 years of age accounted for 27.3±1.2% of all adult current smokers 18 years of age and older.

Age

Figure 3.2 shows trends in smoking prevalence (standardized by gender, race/ethnicity, education) within 3-year age groups.

Figure 3.2: Trends in Current Smoking Prevalence by Age Among Young Adults 18-29 Years



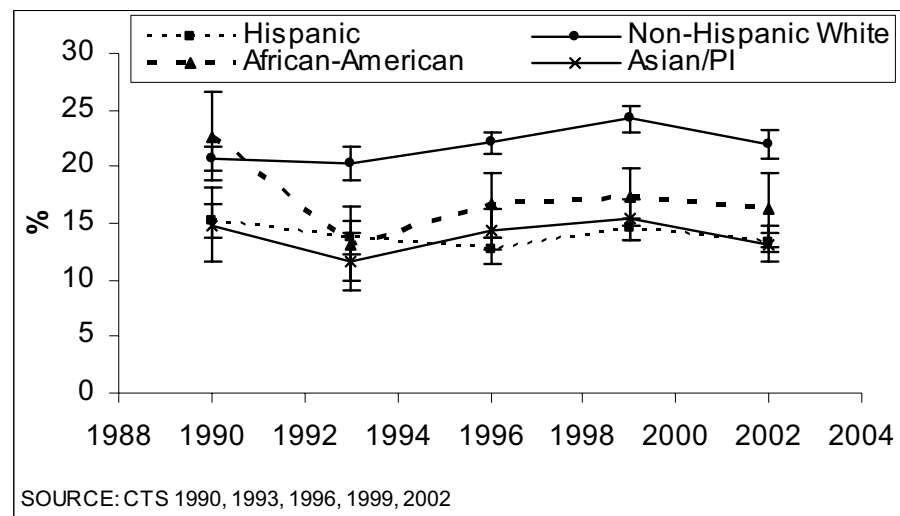
Consistent with national trends (Johnson et al., 2003), except for 26- to 29-year-olds, smoking prevalence increased in the mid-1990s, and declined slightly in all age groups between 1999 and 2002. While the 18- to 21-year-olds showed lower smoking prevalence in all survey years, the prevalence changes for this age group tended to be more abrupt. In contrast to the older age groups, the decline between 1999 and 2002, by a factor of 16.9%, was significant. The next cohort of 18- to 21-year-olds in 2005 should show still lower rates of current smoking, since relatively fewer adolescents were established smokers in the 14- to 17-year-old age group in 2002 (see Chapters 7). The 22- to 25-year-olds had the highest prevalence in 2002, perhaps because more of these young adults began smoking as young adolescents during the early 1990s, the prime years of Joe Camel and attractive tobacco promotional items. The oldest age group had the highest prevalence in 1990, but in contrast to the other groups, the overall decline from 1990 to 2002 by a factor of 18.8% was significant.

Race/Ethnicity

Smoking prevalence declined dramatically in African American young adults between 1990 and 1993 (by a factor of 41.6%).

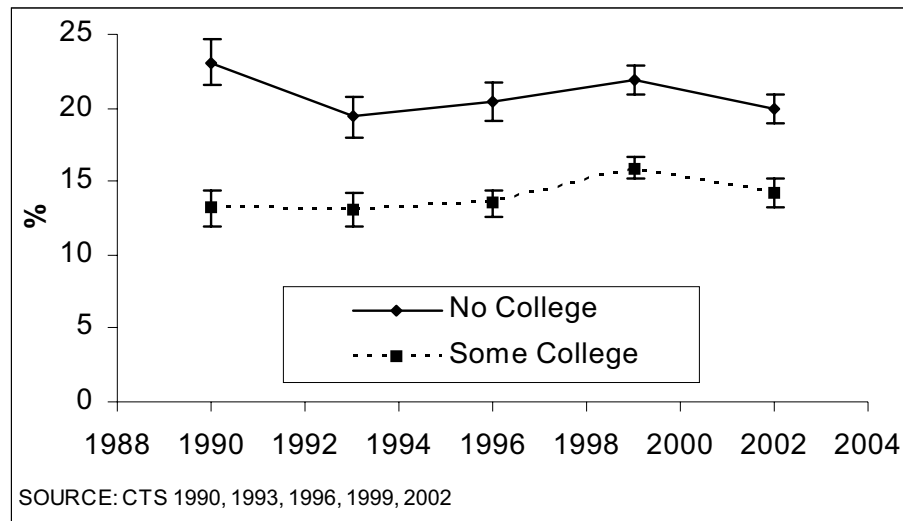
Figure 3.3 shows trends in current smoking prevalence (standardized by age, gender, and education) for young adults in different racial/ethnic groups. African American adults overall showed higher prevalence rates than other racial/ethnic groups (Chapter 2). For young adults, however, a different pattern was observed. In 1990, smoking prevalence was the same in African American and Non-Hispanic White young adults. However, between 1990 and 1993, smoking prevalence for African Americans declined significantly by a factor of 41.6%, to a rate that was then significantly lower than that of Non-Hispanic Whites and not significantly different from other minority groups through 2002. This abrupt decrease among African Americans may be due to new groups of adolescents maturing to young adulthood as never smokers, less experimentation during young adulthood, or failure of experimenters to go on to become established smokers.

Figure 3.3: Trends in Current Smoking Prevalence by Race/Ethnicity Among Young Adults 18-29 Years



Education

Finally, Figure 3.4 shows trends in current smoking prevalence (standardized by gender, age and race/ethnicity) by whether or not the respondent had attended college. Prevalence is higher among those who never attended college, but this group showed a substantial decline between 1990 and 1993 (by a factor of 13.4%) not observed among those with at least some college. This finding is likely at least partially related to the decline in smoking among African Americans described above. In 2002, those with no college were more likely to be current smokers than those with at least some college by a factor of 40.8%.

Figure 3.4: Trends in Current Smoking Prevalence by College Status Among Young Adults 18-29 Years

2. Changes in the Uptake Pattern in Age Groups of Young Adults

This section examines the age groups shown in Figure 3.2 in more detail, according to the age of their first cigarette, the age when they started smoking regularly, and whether they ever transitioned to smoking at least 100 cigarettes in their lifetime (became established smokers). The 2002 CTS asked all persons who admitted to smoking even one cigarette:

How old were you when you smoked your first whole cigarette?

How old were you when you first began to smoke cigarettes on a regular basis?

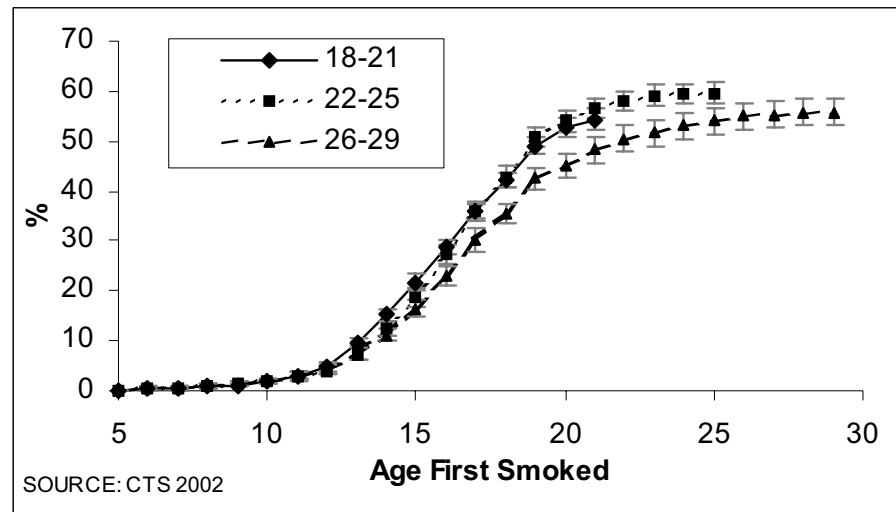
Age at First Cigarette

Overall, $56.6 \pm 2.4\%$ of the 26- to 29-year-olds ever experimented with cigarettes, $60.1 \pm 2.0\%$ of the 22- to 25-year-olds ever experimented, and $51.7 \pm 1.6\%$ of the 18- to 21-year-olds ever experimented. The lower rate in the youngest group may be because the age window for experimentation has not yet closed for this cohort.

Figure 3.5 presents the cumulative percentage of each age group that had their first cigarette by a given age. These curves were computed with an appropriate adjustment for persons not observed after their age at survey. The 26- to 29-year-olds showed later and lower rates of first experimentation than the younger groups. The 22- to 25-year-olds had the highest level of ever experimenting, but the 18- to 21-

year-olds could either level out at a lower rate or continue a slow increase until the rate reaches the same level observed in the 22- to 25-year old cohort.

Figure 3.5: Cumulative Percentage of Population Ever Experimenting by Age Cohorts of Young Adults



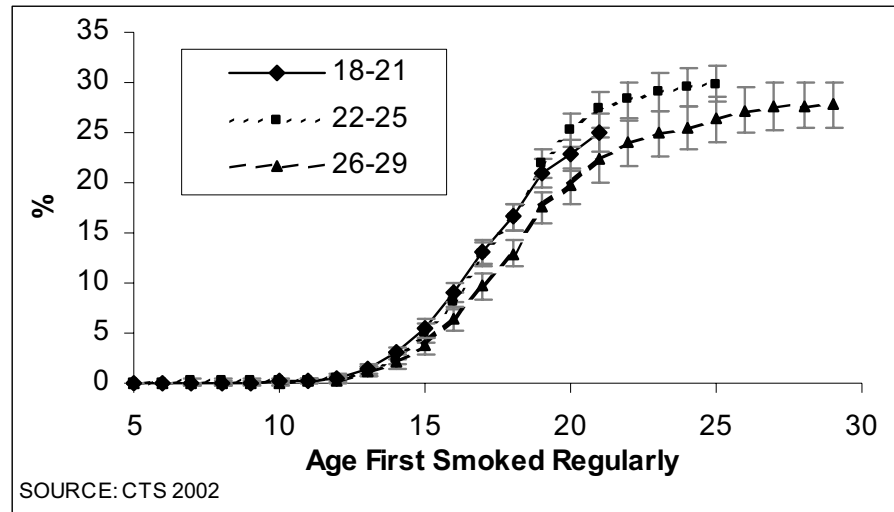
Progression to Regular Smoking

The percentages of experimenters in each age cohort that reported smoking at least 100 cigarettes in their lifetime (becoming established smokers) were as follows: 51.2±3.1% for 26- to 29-year-olds, 51.7±2.5% for 22- to 25-year-olds, and 44.5±2.4% for 18- to 21-year-olds, although it is to be expected that more will eventually transition in this later group.

Of people who indicated that they had smoked at least 100 cigarettes in their lifetime, well over 90% (93.2±0.9%) reported the age at which they began to smoke on a regular basis, and the percentage reporting an age did not vary much among the cohorts: 93.2±1.6% for 26- to 29-year-olds, 92.3±2.0% for 22- to 25-year-olds, and 94.4±2.0% for 18- to 21-year-olds.

For established smokers, **Figure 3.6** shows the cumulative percentage of each age group that began regular smoking by a given age. Again, these curves were computed with an appropriate adjustment for persons not observed after their age at survey. The 22- to 25-year-old cohort shows the highest rates of regular smoking, and, in both this cohort and the younger one, regular smoking tended to occur at a younger age than in the oldest cohort. While a few established smokers in the 18- to 21-year-old cohort may still become regular smokers, it is unlikely that this cohort will reach the same level.

Figure 3.6: Cumulative Percentage of Population Becoming Regular Smokers by Age Cohorts of Young Adults



It is interesting to examine trends in the age of regular smoking at age 18 or older, when people can legally buy cigarettes. Analyses of rates of initiation of regular smoking in national data indicate that by the late 1980s, very few people reported they initiated regular smoking at 21 years or older, but considerable transition to regular smoking still took place from 18 to 20 years (Gilpin, et al., 1994).

Greater percentages of young adults started smoking at age 18 or older in 2002 than in 1990.

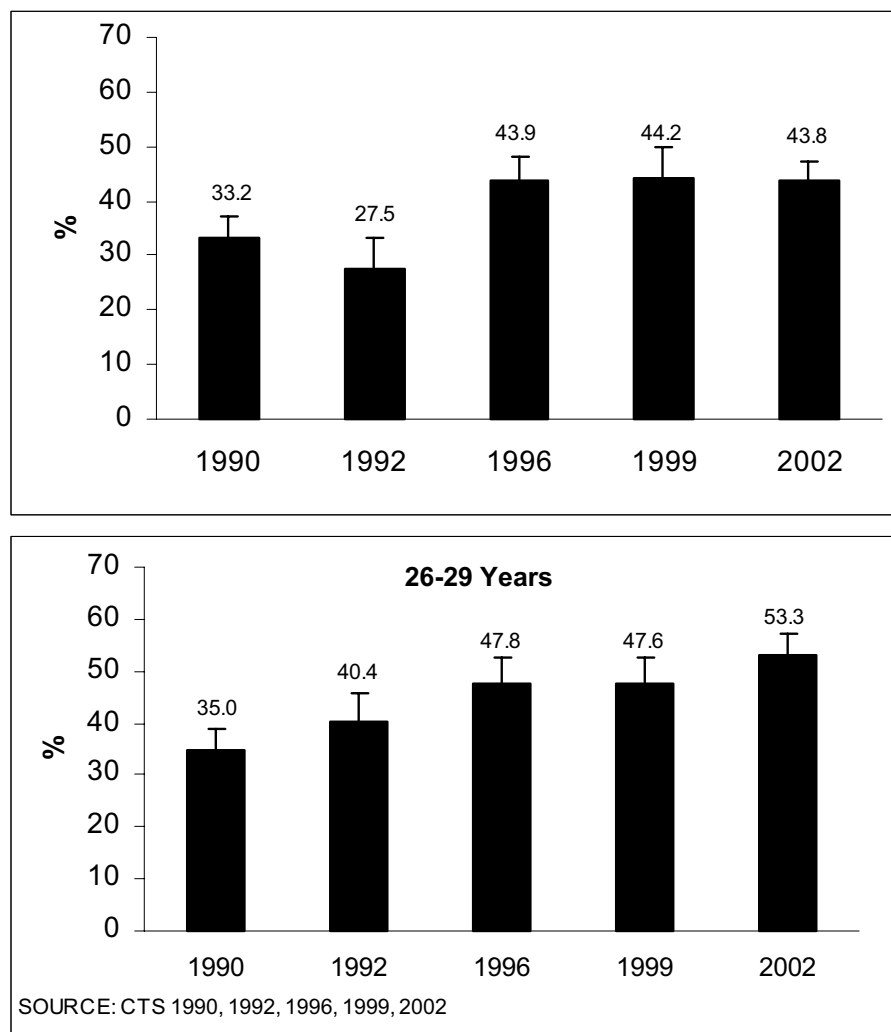
Figure 3.7 presents trends for established smokers who started smoking regularly at age 18 or older in the two older age groups of young adults, but omits the younger group who still may transition to regular smoking.

Comparing the results from the earlier CTS with the later CTS indicates that greater percentages of young adults in these age groups were starting to smoke regularly at older ages in 2002 compared to 1990. Thus, the smoking uptake process now appears to extend well into the mid-20s. In the earlier survey years, the CTS did not ask adults about the age when they had their first cigarette, so it is unknown whether first experimentation occurred

before or after age 18, or whether the time from the first cigarette to regular smoking is longer.

The results presented in this section suggest that the 22- to-25 year-old cohort had higher rates of regular smoking than the older cohort and potentially the youngest one. This cohort represents those who were 11- to 14 year in 1991, a potentially successful target of the tobacco industry (the heyday of Joe Camel and Camel Cash promotions, with Marlboro Miles entering the picture in 1993). However, since the smoking uptake process is not yet completed for the youngest cohort, it is difficult to discern whether it will eventually equal or surpass the middle cohort. It is possible that the success of the California Tobacco Control Program in discouraging adolescents from smoking is delaying regular smoking initiation. Alternatively, current promotional practices of the tobacco industry that target young adults (Katz & Lavack, 2002; Sepe et al., 2002) may be prolonging the uptake window and influencing more experimenters to keep smoking so that they will eventually become established smokers and consider themselves regular smokers.

Figure 3.7: Young Adult Established Smokers Who Started Smoking at Age 18 or Older



3. Smoking Behavior Among Young Adults in 2002

The standard definition of smoking status (never, former, and current) does not adequately capture the smoking behavior of young adults. This section examines the smoking status of young Californians in more detail, and provides data to help identify which young adults are at risk for future smoking.

Categorizing Smoking Behavior

The 2002 CTS extended interview asked a number of questions about respondents' smoking behavior.

Current daily smokers were asked the following:

How many cigarettes on average do you smoke per day?

Current smokers who indicated they smoked 'some days' were asked the following:

Have you ever smoked daily for a period of 6 months or more?

Established smokers who indicated that they now smoked 'not at all' were asked the following:

When did you last smoke regularly?

When did you last smoke or have a puff on a cigarette?

Do you ever think about smoking and whether you might go back?

Do you think that there is any possible situation in which you might start smoking again?

Those who had not smoked 100 cigarettes in their lifetime were asked the following:

What would you say is the total number of cigarettes that you have ever smoked?

Anyone indicating they had smoked 1-99 cigarettes (*experimenter*) was asked the following:

On how many of the last 30 days did you smoke a cigarette?

You indicated that you are not now a smoker, but do you ever have a cigarette once in a while?

How old were you when you had your last cigarette?

Never smokers (0 cigarettes in lifetime) and experimenters were asked the following:

Do you think that you will smoke a cigarette soon?

Do you think you will smoke a cigarette in the next year?

Never smokers committed not to smoke ruled out future smoking by answering 'no' to the first question and 'definitely not' to the second. Those who failed to rule out smoking soon or in a year were considered susceptible to future smoking.

Using the information from these questions, each young adult (n=9,364) was classified into one of 13 categories of smoking behavior as defined in **Table 3.1**.

| Table 3.1 Smoking Behavior Categories in Young Adults (18 to 29 Years) | | | |
|--|------------------------------|---|------------------------|
| Category | | Definition | % of Population |
| Current daily smoker | | Established smoker, now smokes 'everyday' | |
| 1 | Moderate-to-heavy | ≥ 15 cigarettes/day | 4.4 (±0.5) |
| 2 | Light | < 15 cigarettes/day | 6.6 (±0.6) |
| Current non-daily smoker | | Established smoker, now smokes 'some days' | |
| 3 | Once daily non-daily smoker | Answered 'yes' to ever smoked daily for 6 months | 3.3 (±0.4) |
| 4 | Never daily non-daily smoker | Answered 'no' to ever smoked daily for 6 months | 4.1 (±0.6) |
| Former smoker | | Established smoker who now smokes 'not at all' | |
| 5 | Quit ≤ 1 year | Quit regular smoking date within 1 year of survey date | 2.5 (±0.3) |
| | Quit > 1 year | Quit regular smoking date more than 1 year of survey date | |
| 6 | Lapse or vulnerable | Last cigarette within 1 year of survey date or indicated may smoke again | 2.9 (±0.4) |
| 7 | No lapse, not vulnerable | Last cigarette over 1 year of survey date and not vulnerable to smoking again | 3.6 (±0.5) |
| Experimenter | | Smoked 1-99 cigarettes ever | |
| 8 | Current | Smoked on any of past 30 days or answered 'yes' to smoking once in a while | 6.8 (±0.7) |
| 9 | Former < 1 year | Age of last cigarette within a year of current age | 4.8 (±0.5) |
| 10 | Former > 1 year, susceptible | Age of last cigarette more than a year less than current age, but does <u>not</u> rule out future smoking | 3.7 (±0.3) |
| 11 | Former > 1 year, committed | Age of last cigarette more than a year less than current age, but rules out future smoking | 14.0 (±0.8) |
| Never smoker | | Answered 'zero' to total ever question | |
| 12 | Susceptible | Does not rule out smoking in the future | 3.9 (±0.5) |
| 13 | Committed | Rules out smoking in the future | 39.5 (±1.2) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 2002

This detailed categorization of smoking behavior is important because it captures the smoking uptake process by identifying those young adults at risk for future smoking. We use the term *susceptible* to define never smokers and former experimenters that do not rule out future smoking, and *vulnerable* to define former established smokers that may relapse.

A majority (60.0±4.0%) of young adult daily smokers (categories 1 and 2) were light smokers (category 2), but if tolerance develops, many may increase their consumption level. Also, over half (55.6±4.4%) of current smokers who were non-daily smokers (categories 3 and 4) had never smoked daily for at least six months (category 4). Whether they will be able to maintain this status or go on to become daily smokers is unknown. The remainder that had previously smoked daily may be on their way to cessation or they may relapse to daily smoking.

Nearly 60% of young adults classified as former established smokers were vulnerable to relapse.

Of established smokers (categories 1-7), 33.0±1.9% indicated that they now smoke 'not at all' (categories 5, 6, and 7) and thus would be defined as former smokers according to the standard definition. However, of these, over a quarter (27.9±3.5%) quit smoking regularly in the past year (category 5). Further, of those quit for over a year, almost half (43.9±4.9%) either had smoked a cigarette in the last year, still think about smoking, or could think of a situation where they might smoke again (category 6). Considering the latter group and the recent quitters, nearly 60% (59.6±4.3%) of former established smokers were vulnerable to relapse.

Experimenters (categories 8-11) comprised 29.3±1.1% of the young adult population. Nearly one-quarter of all experimenters (23.2±1.8%) were current experimenters (category 8), 16.3±1.6% experimented in the last year, and 12.8±1.2% were susceptible to experimenting again (categories 9 and 10). Less than half (47.8±2.0%) of the former experimenters (>1 year since last cigarette) were committed not to smoke again (category 11). Of all experimenters, 52.2±2.0% were at risk for future smoking, either because they were current experimenters, had experimented in the past year, or were longer term former experimenters susceptible to smoking again. These at-risk experimenters may be easily influenced to continue or resume experimentation and progress to established smoking. Only 9.0±1.2% of never smokers (categories 12 and 13) were still susceptible to smoking (category 12).

Risk for Future Smoking

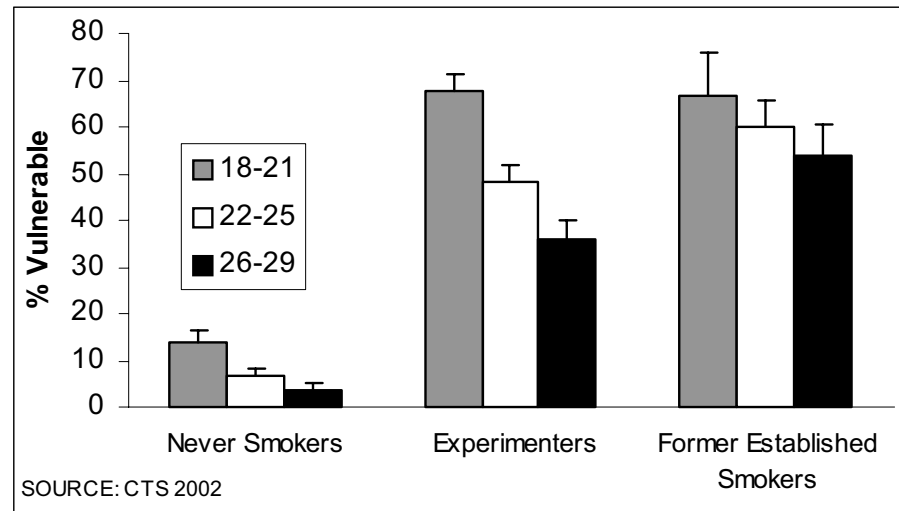
Over 50% of all young adults who had ever smoked a cigarette, but who are not current established smokers, were at risk to smoke in the future.

Individuals who had ever had a cigarette were considered vulnerable to smoke again if they were (1) current experimenters, (2) experimenters who had smoked a cigarette in the past year, (3) longer-term former experimenters who did not rule out smoking again, or (4) former established smokers vulnerable to relapse (had smoked in the last year, including a lapse, or thought about smoking or situations in which they might smoke again). Altogether, over half (54.0±1.7%) of young adults who have ever had a cigarette (categories 5-11) and who are not current established smokers were in danger of becoming a smoker (categories 5, 6, 8, 9, 10). Including current established smokers (categories 1-4) as at risk for future

smoking and considering all young adults, $55.1 \pm 1.2\%$ were at risk. These findings further illustrate the volatile nature of smoking behavior during young adulthood.

Figure 3.8 describes the age distribution of those at risk for becoming a future smoker for susceptible never smokers (category 12), at-risk experimenters (categories 8-10), and former established smokers vulnerable to future smoking (categories 5 and 6).

Figure 3.8: Decline of Risk for Future Smoking in Age Groups of Young Adults



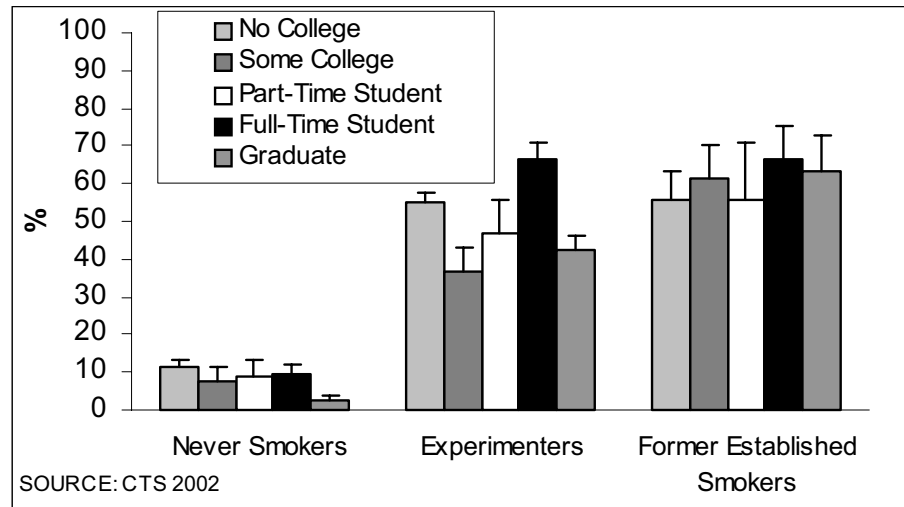
| | 18-21 yrs | 22-25 yrs | 26-29 yrs |
|----------------------------|-----------|-----------|-----------|
| Never Smokers | 14.1 | 6.6 | 3.7 |
| Experimenters | 67.9 | 48.1 | 35.9 |
| Former Established Smokers | 66.9 | 59.9 | 53.9 |

The percentage of never smokers who are susceptible to smoking declined with age; in the oldest cohort, only $3.7 \pm 1.4\%$ of never smokers were still susceptible, lower by a factor of 73.5% than the youngest group. There is a similar marked decline by a factor of 47.1% in the percentage of experimenters at risk for future smoking. Without longitudinal data, it is impossible to determine whether the never smokers or experimenters either went on to smoke or became confirmed nonsmokers as they aged. While significant, the decline among former established smokers vulnerable to relapse was much less (by only a factor of 19.5%) than for experimenters, which likely reflects their recent former addiction and its continued effect. Ever having smoked appears to make an individual less inclined to disavow future smoking. Again, to determine the percentages of these groups who will successfully resist smoking as they get older requires longitudinal studies.

Full-time college students classified as experimenters were particularly vulnerable to future smoking.

Figure 3.9 shows the distribution of the groups at risk for future smoking by college status. Respondents were categorized as: (1) having no college, (2) having some college but not currently a student, (3) a current part-time student, (4) a current full-time student, or (5) a college graduate.

Figure 3.9: Percentage of Young Adults at Risk for Future Smoking by College Status

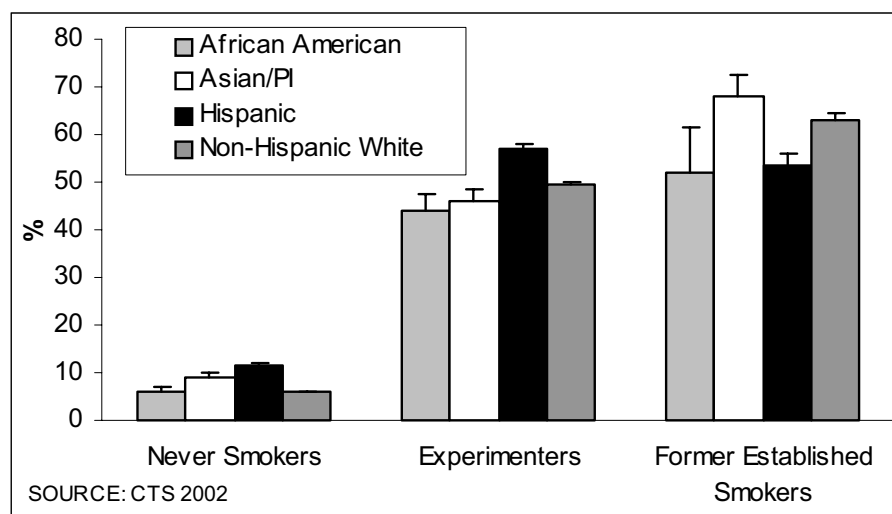


| | No College | Some College | Part-Time Student | Full-Time Student | Graduate |
|----------------------------|------------|--------------|-------------------|-------------------|----------|
| Never Smokers | 11.5 | 7.5 | 9.0 | 9.5 | 2.7 |
| Experimenters | 55.0 | 36.5 | 47.0 | 66.7 | 42.1 |
| Former Established Smokers | 55.6 | 61.2 | 55.7 | 66.7 | 63.5 |

Never smokers who never attended college appeared slightly more susceptible to smoke than other young adults who had some college education, and college graduates were the least likely to be susceptible. These differences were statistically significant. Recall from earlier in this chapter that current smoking was more prevalent in the group never attending college than in those who ever attended college. Full-time college students classified as experimenters were significantly more susceptible to future smoking than other groups, although those with no college also showed significantly higher risk compared to those with some college and college graduates. Among former established smokers, full-time college students and college graduates had the highest levels of vulnerability to relapse, but the differences among these groups were not significant. It is likely that current students (full and part time) tend to be younger than those in the groups with no college, some college, and college graduates. However, an analysis restricted to those 18 to 25 years revealed a similar pattern. Tobacco control measures to discourage smoking on college campuses may need to be a priority.

Figure 3.10 examines risk for future smoking by race/ethnicity.

Figure 3.10: Percentages of Young Adults at Risk for Future Smoking by Race/Ethnicity



| | African American | Asian/PI | Hispanic | Non-Hispanic White |
|---------------------------|------------------|----------|----------|--------------------|
| Never Smokers | 5.8 | 9.0 | 11.4 | 5.8 |
| Experimenter | 44.2 | 46.2 | 56.9 | 49.7 |
| Former Established Smoker | 52.0 | 67.9 | 53.3 | 63.1 |

Hispanic never smokers were significantly more likely to be susceptible to smoking than African Americans or Non-Hispanic Whites, and Hispanic experimenters were significantly more likely to be at risk than Non-Hispanic White experimenters. However, Hispanic former established smokers appeared less vulnerable to relapse than other groups, but the rates for the different groups were not statistically different.

Chapter 2 showed high rates of current smoking among all African American adults, yet this chapter's analysis of young adults (Section 1) showed that smoking declined in young African Americans after 1990. If these African Americans are headed to high levels of smoking as older adults, it would be expected that they would be more represented than other groups among the susceptible never smokers and experimenters. However, the data do not support this hypothesis. Perhaps this generation of African Americans will escape the high levels of smoking seen among older generations.

Demographic analyses by smoking status categories are included in Appendix Tables A.3.2 (current established smokers), A.3.3 (former established smokers), A.3.4 (experimenters), and A.3.5 (never smokers). As would be expected from Figure 3.1, more females were never smokers, and fewer were represented in the experimenter and established smoker groups. Married young adults were more represented among the former experimenter and former established smoker groups and less represented in the current smoker groups, and the opposite pattern was apparent for those divorced, widowed or separated. Unemployed young adults have particularly high rates of current smoking.

4. Summary

Overall trends in smoking among young adults in California over the last decade are similar to those observed nationally, showing a recent decline following an increase in the mid-1990s. In California, young women smoke much less than young men, and they showed a significant decline between 1999 and 2002. While smoking prevalence is very high among adult African Americans overall (Chapter 2), prevalence declined abruptly among young adult African Americans between 1990 and 1993 and has remained at lower levels since then. Young adults who have never attended college smoke at higher rates than those who have attended college, but show a recent decline not observed among those who have attended college.

The cohort of young adults 22 to 25 years of age were at the most likely ages for experimentation during adolescence (11 to 14 years) when Joe Camel was at his prime in the early 1990s. This group seems to have experimented more, transitioned to established smoking at a younger age, and still exhibits higher smoking prevalence than either older or younger cohorts of young adults. There is some indication that young adults categorized as established smokers are transitioning to regular smoking at somewhat older ages in more recent years compared to earlier in the 1990s.

Smoking behavior is quite volatile during young adulthood. For many, the smoking uptake process is still in full swing. About one-third of all established smokers (smoked at least 100 cigarettes in lifetime) were former smokers, but many of these former smokers ($59.6 \pm 4.3\%$) were vulnerable to relapse. Also, many young adults have experimented sometime in their lives (smoked 1 to 99 cigarettes in lifetime). Altogether, $52.2 \pm 2.0\%$ of experimenters were at risk for future smoking either as current or recent former experimenters or longer-term former experimenters who are susceptible to smoking again, although the percentage at risk declined substantially with age. Not including current established smokers, over half ($54.0 \pm 1.7\%$) of young adults between 18 and 29 years of age who have ever had a cigarette appear still at risk for smoking again in the future. Including current smokers, this percentage is $55.1 \pm 1.2\%$ of the total young adult population.

During the period between first experimentation and the beginning of sustained regular smoking, young adult smokers may be particularly receptive to influences promoting or discouraging smoking. After cessation, young adult former smokers could experience societal reinforcement of their decision to quit or be enticed to relapse. As shown in Chapter 5, the tobacco industry is actively promoting smoking to this age group. The findings of this chapter clearly indicate that large numbers of young adults can potentially be influenced.

The findings of this chapter underscore the importance of interventions to discourage smoking among young adults. Many college students are at risk for smoking, and this group is probably one of the easiest to reach through targeted programs, but young adults

who never attended college have higher current smoking rates and also need to be a target of antismoking campaigns. Anti-tobacco programs on college campuses and media messages aimed at the young adults population in general are critically important.

Chapter

APPENDIX

3 Young Adults: Smoking Prevalence, Uptake Patterns and Vulnerability To Smoking

1. Smoking Prevalence in Demographic Groups of Young Adults

Table A.3.1 provides the numbers plotted in Figures 3.1 to 3.4. These trends are discussed in detail in Section 1 of this chapter.

| Table A.3.1 Current Smoking Prevalence in Demographic Groups of Young Adults, 18-29 Years | | | | | |
|--|-------------|-------------|-------------|-------------|-------------|
| | 1990 % | 1992 % | 1996 % | 1999 % | 2002 % |
| Overall | 18.2 (01.0) | 16.1 (01.0) | 17.0 (00.8) | 18.7 (00.7) | 17.0 (00.7) |
| Gender | | | | | |
| Male | 21.4 (01.2) | 19.5 (01.6) | 20.2 (01.1) | 23.1 (00.8) | 21.6 (01.0) |
| Female | 14.9 (01.3) | 12.5 (01.0) | 13.6 (00.9) | 14.1 (00.8) | 12.0 (00.8) |
| Age | | | | | |
| 18-21 | 16.2 (01.6) | 13.4 (01.1) | 15.8 (01.1) | 17.8 (00.9) | 14.8 (01.1) |
| 22-25 | 18.1 (01.5) | 16.9 (01.8) | 18.2 (01.2) | 20.0 (01.2) | 19.5 (01.4) |
| 26-29 | 20.8 (01.8) | 18.4 (02.0) | 17.1 (01.0) | 18.3 (01.0) | 16.9 (01.2) |
| Race/Ethnicity | | | | | |
| African American | 22.6 (03.9) | 13.2 (03.2) | 16.6 (02.9) | 17.3 (02.4) | 16.2 (03.2) |
| Asian/PI | 14.9 (03.3) | 11.6 (02.6) | 14.4 (01.8) | 15.3 (01.7) | 13.2 (01.6) |
| Hispanic | 15.2 (01.5) | 13.8 (01.5) | 12.6 (01.1) | 14.5 (01.0) | 13.3 (00.9) |
| Non-Hispanic White | 20.8 (01.0) | 20.3 (01.5) | 22.1 (01.0) | 24.2 (01.1) | 22.0 (01.3) |
| Education | | | | | |
| No college | 23.1 (01.5) | 19.4 (01.4) | 20.4 (01.3) | 21.9 (00.9) | 20.0 (01.0) |
| Some college | 13.2 (01.2) | 13.1 (01.2) | 13.5 (00.9) | 15.9 (00.8) | 14.2 (01.0) |

TABLE ENTRIES ARE STANDARDIZED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1992, 1996, 1999, 2002

2. Population Prevalence of Smoking Status Categories in Demographic Subgroups

Tables A.3.2 through A.3.5 look at the population prevalence for each smoking-status category in demographic groups of young adults. Thus, the data in one table are related to the data in another. For instance, a group that is more represented among current smokers will likely be less represented among never smokers.

Table A.3.2 shows the percentages of each group of current established smokers in the young adult population in demographic categories. Females were significantly less represented in all groups of current smokers than males. People 21 to 26 years of age had higher prevalence rates in all groups than those younger or older, but the difference in the prevalence of moderate-to-heavy daily smokers was not significant between the younger two age groups. Non-Hispanic Whites had significantly higher prevalence rates in all groups except the never-daily group, where prevalence was significantly higher for

| Table A.3.2 | | | | |
|--|--|--|--|---|
| Young Adult Current Established Smokers by Smoking Level and Demographics | | | | |
| | Daily | | Non-Daily | |
| | 15+ Cigarettes/ day % | < 15 Cigarettes/ day % | Once Daily >6 Months % | Never Daily >6 Months % |
| Overall | 4.4 (00.5) | 6.6 (00.6) | 3.3 (00.4) | 4.1 (00.6) |
| Gender | | | | |
| Male | 5.9 (00.8) | 7.9 (00.9) | 3.8 (00.6) | 5.5 (00.9) |
| Female | 2.7 (00.5) | 5.1 (00.7) | 2.6 (00.4) | 2.6 (00.5) |
| Age | | | | |
| 18-21 | 4.6 (00.8) | 5.9 (00.8) | 2.5 (00.5) | 3.5 (00.9) |
| 22-25 | 4.7 (00.8) | 7.8 (01.1) | 4.0 (00.8) | 5.1 (01.0) |
| 26-29 | 3.7 (00.8) | 6.2 (01.1) | 3.5 (00.8) | 3.8 (00.8) |
| Race/Ethnicity | | | | |
| African American | 3.0 (01.8) | 8.0 (02.9) | 2.1 (01.3) | 2.5 (01.7) |
| Asian/PI | 2.6 (01.2) | 6.5 (01.7) | 2.2 (01.0) | 2.6 (01.0) |
| Hispanic | 1.9 (00.6) | 4.7 (00.9) | 2.8 (00.5) | 5.0 (01.0) |
| Non-Hispanic White | 7.7 (01.1) | 8.2 (01.0) | 4.3 (00.8) | 3.8 (00.8) |
| Education | | | | |
| No college | 5.9 (00.9) | 8.0 (01.0) | 3.1 (00.5) | 4.0 (00.9) |
| Some college, not current | 5.9 (01.7) | 8.4 (02.2) | 3.4 (01.3) | 5.3 (01.5) |
| Part time student | 4.5 (01.7) | 6.7 (02.2) | 4.0 (01.7) | 5.3 (02.3) |
| Full time student | 2.2 (00.9) | 4.8 (01.1) | 2.9 (00.8) | 3.3 (00.9) |
| College graduate | 1.7 (00.6) | 3.6 (01.0) | 3.7 (00.9) | 4.4 (01.2) |
| Marital status | | | | |
| Married | 2.1 (00.7) | 5.5 (00.9) | 2.2 (00.7) | 3.0 (00.9) |
| Partnered | 6.9 (02.0) | 8.7 (02.5) | 3.8 (01.3) | 3.4 (01.1) |
| Divorced/widowed/separated | 8.7 (03.4) | 8.5 (03.2) | 4.8 (02.5) | 6.4 (03.1) |
| Single | 4.6 (00.6) | 6.5 (00.7) | 3.5 (00.5) | 4.6 (00.8) |
| Employment Status | | | | |
| Working | 5.2 (00.6) | 8.0 (00.9) | 3.6 (00.5) | 5.2 (00.8) |
| Homemaker | 1.4 (01.0) | 2.5 (01.2) | 1.6 (00.9) | 1.9 (01.1) |
| Student | 2.7 (00.8) | 4.2 (00.9) | 2.2 (00.5) | 2.3 (00.7) |
| Unemployed | 7.6 (02.5) | 8.4 (02.0) | 5.8 (01.7) | 4.9 (02.0) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 2002

Hispanics. Hispanics showed the lowest prevalence rates for daily smoking. College graduates showed lower rates of daily smoking, but the difference between this group and full-time students was not significant. Full-time college students showed significantly lower daily smoking rates compared to those with no college or with some college but not attending currently. Married individuals were less likely to be moderate-to heavy daily smokers than other groups, and less likely to be once-daily non-daily smokers than single individuals. Homemakers and current students were significantly less likely to be any type of current smoker than workers or the unemployed.

Table A.3.3 presents the percentages of the various groups of former established smokers in the young adult population in demographic subgroups. Rates did not differ significantly between males and females. Older individuals were significantly more likely to be quit for over a year and not be vulnerable to relapse. Non-Hispanic Whites were significantly more likely to be quit for a year or more and not be vulnerable to relapse compared to the Asian/PI group.

They were also significantly more likely to be recent quitters (in last year) than all other racial/ethnic groups. College graduates were significantly less likely to be quit for over a year and not vulnerable to relapse compared to all other education groups except for full-time college students. Married or partnered individuals were significantly more likely to be quit for over a year and not vulnerable to relapse than single individuals. Current students were less likely to be to be quit for over a year and not vulnerable to relapse than those currently working.

| Table A.3.3 Young Adult Former Established Smokers by Vulnerability to Relapse and Demographics | | | |
|--|---|--|-----------------------|
| | Quit > 1 Year Not Vulnerable* % | Quit > 1 Year Vulnerable * % | Quit < 1 Year % |
| Overall | 3.6 (00.5) | 2.9 (00.4) | 2.5 (00.3) |
| Gender | | | |
| Male | 4.0 (00.7) | 3.3 (00.7) | 2.9 (00.6) |
| Female | 3.2 (00.5) | 2.4 (00.4) | 2.1 (00.5) |
| Age | | | |
| 18-21 | 2.2 (00.7) | 1.5 (00.4) | 2.9 (00.7) |
| 22-25 | 3.8 (00.7) | 3.6 (00.7) | 2.1 (00.6) |
| 26-29 | 5.4 (00.9) | 3.9 (00.9) | 2.5 (00.7) |
| Race/Ethnicity | | | |
| African American | 2.7 (02.1) | 0.8 (00.8) | 2.2 (01.4) |
| Asian/PI | 2.0 (00.8) | 2.7 (01.2) | 1.6 (00.9) |
| Hispanic | 3.6 (00.8) | 2.2 (00.5) | 1.9 (00.6) |
| Non-Hispanic White | 4.4 (00.6) | 3.8 (00.6) | 3.6 (00.6) |
| Education | | | |
| No college | 3.9 (00.7) | 2.4 (00.6) | 2.6 (00.6) |
| Some college, not current | 4.9 (01.2) | 4.7 (01.6) | 3.0 (01.2) |
| Part time student | 3.9 (01.6) | 2.9 (01.4) | 2.1 (01.2) |
| Full time student | 2.9 (00.9) | 3.0 (00.8) | 2.8 (00.9) |
| College graduate | 2.9 (00.9) | 3.1 (00.9) | 1.9 (00.7) |
| Marital status | | | |
| Married | 6.0 (01.0) | 3.5 (01.0) | 2.0 (00.7) |
| Partnered | 5.1 (01.6) | 3.7 (01.3) | 3.4 (01.6) |
| Divorced/widowed/separated | 4.1 (02.9) | 3.0 (02.2) | 2.0 (02.2) |
| Single | 2.4 (00.5) | 2.4 (00.5) | 2.6 (00.6) |
| Employment Status | | | |
| Working | 4.3 (00.6) | 3.3 (00.6) | 2.6 (00.5) |
| Homemaker | 4.7 (02.0) | 2.1 (00.9) | 2.1 (01.3) |
| Student | 2.2 (00.6) | 2.6 (00.7) | 2.3 (00.6) |
| Unemployed | 2.6 (01.2) | 1.2(00.6) | 2.9 (01.4) |

*HAD A CIGARETTE IN LAST YEAR, THINKS ABOUT SMOKING OR SITUATION WHERE MIGHT SMOKE.

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 2002

Table A.3.4 shows the population prevalences for the groups of experimenters in the different demographic subgroups.

Females were significantly less likely to be current experimenters than males. Individuals in the youngest age group (18-21 years) were significantly more likely to be current experimenters than 26- to 29-year-olds, while 18- to 21-year olds were significantly less likely to be former experimenters committed to not smoking again than 22- to 25-year-olds and 26- to 29-year-olds. Hispanics differed from other racial/ethnic groups as they were (1) significantly more likely to be former experimenters susceptible to smoking again than other racial/ethnic groups; (2) significantly more likely to

have ceased experimenting in the past year than African Americans or the Asian/PI group, and (3) significantly more likely to be current experimenters than non-Hispanic Whites. College graduates were significantly more likely to be committed former experimenters than full time students or those who had never attended college. Full time college students were significantly more likely to be recent or current experimenters than those who had attended college in the past but were not now attending. Married individuals were more

| Table A.3.4 shows the population prevalences for the groups of experimenters in the different demographic subgroups. Table A.3.4 Types of Young Adult Experimenters In Demographic Subgroups | | | | |
|--|----------------------------|------------------------------|---------------|------------|
| | Former | | | Current |
| | > 1 Year Committed % | > 1 Year Susceptible % | < 1 Year % | % |
| Overall | 14.0 (±0.8) | 3.8 (±0.3) | 4.8 (±0.5) | 6.8 (±0.7) |
| Gender | | | | |
| Male | 14.5 (±1.2) | 4.7 (±0.6) | 5.4 (±0.7) | 8.1 (±1.0) |
| Female | 13.4 (±1.1) | 2.6 (±0.4) | 4.1 (±0.6) | 5.3 (±0.8) |
| Age | | | | |
| 18-21 | 9.4 (±1.1) | 3.8 (±0.6) | 8.1 (±1.0) | 7.9 (±1.1) |
| 22-25 | 15.6 (±1.2) | 4.0 (±0.7) | 3.3 (±0.8) | 7.1 (±1.2) |
| 26-29 | 18.4 (±1.7) | 3.4 (±0.8) | 2.0 (±0.6) | 5.0 (±1.0) |
| Race/Ethnicity | | | | |
| African American | 13.9 (±3.1) | 2.3 (±1.4) | 2.4 (±1.3) | 6.3 (±2.3) |
| Asian/PI | 14.3 (±2.5) | 3.0 (±1.3) | 3.3 (±1.1) | 6.0 (±2.0) |
| Hispanic | 13.8 (±1.2) | 5.1 (±0.8) | 5.0 (±0.9) | 8.1 (±1.2) |
| Non-Hispanic White | 14.0 (±1.2) | 2.7 (±0.5) | 5.5 (±0.8) | 5.5 (±0.7) |
| Education | | | | |
| No college | 12.2 (±1.1) | 4.0 (±0.7) | 4.4 (±0.6) | 6.5 (±1.0) |
| Some college, not current | 17.3 (±2.5) | 2.8 (±1.2) | 2.7 (±1.1) | 4.5 (±1.6) |
| Part time student | 17.5 (±3.8) | 4.2 (±1.7) | 5.3 (±2.1) | 5.9 (±2.1) |
| Full time student | 10.0 (±1.6) | 3.2 (±0.8) | 7.8 (±1.3) | 8.9 (±1.4) |
| College graduate | 19.9 (±2.2) | 4.0 (±0.9) | 3.7 (±0.9) | 6.9 (±1.2) |
| Marital status | | | | |
| Married | 19.0 (±1.9) | 3.1 (±0.8) | 2.4 (±0.7) | 4.0 (±0.8) |
| Partnered | 12.1 (±2.1) | 3.7 (±1.2) | 3.2 (±1.3) | 7.1 (±2.0) |
| Divorced/widowed/separated | 13.2 (±4.2) | 4.7 (±2.9) | 1.8 (±1.4) | 7.4 (±3.7) |
| Single | 12.3 (±0.9) | 4.0 (±0.6) | 6.2 (±0.7) | 7.8 (±0.9) |
| Employment Status | | | | |
| Working | 16.1 (±1.0) | 4.2 (±0.5) | 4.3 (±0.7) | 7.5 (±0.8) |
| Homemaker | 11.4 (±2.4) | 1.4 (±0.8) | 1.1 (±1.0) | 2.5 (±1.8) |
| Student | 11.0 (±1.4) | 3.6 (±0.8) | 7.0 (±1.0) | 6.9 (±1.3) |
| Unemployed | 11.4 (±2.7) | 3.5 (±1.5) | 4.4 (±2.3) | 5.1 (±1.9) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 2002

likely to be committed former experimenters and less likely to be current experimenters than the other marital status groups. Those in the workforce were more likely to be committed former experimenters than homemakers, students, or unemployed individuals, but were more likely to be current experimenters than homemakers. Homemakers were less likely to be susceptible former experimenters, recent former experimenters, or current experimenters than the other employment status groups.

Table A.3.5 shows the young adult population prevalences for the committed and susceptible never smokers.

No significant gender differences in the percentages of males and females susceptible to smoking were observed, but significantly more females were committed never smokers than males. Susceptibility declined significantly with age. However, those 21 to 23 years of age showed a significantly lower prevalence of being committed never smokers than the other age groups

Significantly higher percentages of African Americans and the Asian/PI group were committed never smokers compared to Hispanics and Non-Hispanic Whites. Significantly fewer Non-

Hispanic Whites were susceptible never smokers than the other racial/ethnic groups. College graduates showed a significantly lower prevalence of being a susceptible never smoker, but those with some college but not attending now showed a lower prevalence for being susceptible than those with no college. Those with some college but not attending now and part-time students were significantly less likely than full time students or graduates to be committed never smokers. Married individuals were significantly less

| Table A.3.5 Young Adult Never Smokers Types in Demographic Subgroups | | |
|---|----------------------------------|------------------------------------|
| | Committed Never % | Susceptible Never % |
| Overall | 39.5 (01.2) | 3.9 (00.5) |
| Gender | | |
| Male | 30.6 (01.3) | 3.5 (00.7) |
| Female | 49.6 (02.0) | 4.3 (00.8) |
| Age | | |
| 18-21 | 41.1 (01.7) | 6.7 (01.1) |
| 22-25 | 36.3 (01.9) | 2.6 (00.7) |
| 26-29 | 40.8 (02.3) | 1.6 (00.6) |
| Race/Ethnicity | | |
| African American | 50.8 (04.7) | 3.1 (01.6) |
| Asian/PI | 48.4 (03.8) | 4.8 (01.7) |
| Hispanic | 40.7 (01.9) | 5.2 (00.9) |
| Non-Hispanic White | 34.3 (01.8) | 2.1 (00.5) |
| Education | | |
| No college | 38.3 (01.8) | 5.0 (00.9) |
| Some college, not current | 34.4 (02.9) | 2.8 (01.4) |
| Part time student | 34.3 (04.0) | 3.4 (01.5) |
| Full time student | 43.6 (02.5) | 4.6 (01.2) |
| College graduate | 43.1 (02.6) | 1.2 (00.7) |
| Marital status | | |
| Married | 45.0 (02.6) | 2.1 (00.7) |
| Partnered | 35.3 (04.1) | 3.7 (01.5) |
| Divorced/widowed/separated | 32.1 (06.9) | 3.3 (02.6) |
| Single | 38.4 (01.3) | 4.7 (00.8) |
| Employment Status | | |
| Working | 33.1 (01.5) | 2.6 (00.6) |
| Homemaker | 62.1 (04.5) | 5.2 (02.2) |
| Student | 46.6 (02.2) | 6.3 (01.3) |
| Unemployed | 38.3 (04.4) | 3.9 (01.7) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95%
CONFIDENCE LIMITS
SOURCE: CTS 2002

likely than single individuals to be susceptible to smoking, and more likely than all other marital status groups to be committed never smokers. Homemakers were significantly more likely to be committed never smokers than other groups, and both those working and unemployed were less likely than homemakers or students to be committed never smokers. Students were significantly more likely to be susceptible never smokers than those in the workforce.

GLOSSARY

Young Adults (see also Table 3.1)

Current experimenter - an *experimenter* who has had a cigarette in the past 30 days or admits to smoking once in awhile.

Current smoker – has smoked at least 100 cigarettes in his or her lifetime and smokes now (old question) or now either everyday or some days (new question) at the time of the survey.

Established smoker – has smoked at least 100 cigarettes in his or her lifetime.

Experimenter – has smoked a cigarette, but has not smoked at least 100 cigarettes in his or her lifetime.

Former smoker – an *established smoker* who now smokes not at all.

Never smoker – answered ‘none or zero’ to the question about the total number of cigarettes smoked ever (asked of non-established smokers).

REFERENCES

- Cummings KM, Morley CP, Horna JK, Steger C, Leavell NR. Marketing to America's youth: evidence from corporate documents. *Tob Control*. **2002**;11(Suppl 1):i5-i17.
- Gilpin EA, Lee L, Evans N, Pierce JP. Smoking initiation rates in adults and minors: United States, 1944-1988. *Am J Epidemiol*. **1994**;140:535-543.
- Gilpin EA, Pierce JP, Rosbrook B. Are adolescents receptive to current sales promotion practices of the tobacco industry? *Prev Med*. **1997**;26:14-21.
- Johnson LD, O'Malley PM, Bachman JG. *Monitoring the Future national survey results on drug use, 1975-2000. Volume II: College students and adults ages 19-40*. Bethesda, MD: National Institute on Drug Abuse; **2001**. (NIH Pub. No. 01-4925)
- Johnson LD, O'Malley PM, Bachman JG. *Monitoring the Future national survey results on drug use, 1975-2002. Volume II: College students and adults ages 19-40*. Bethesda, MD: National Institute on Drug Abuse; **2003**. (NIH Pub. No. 03-5376)
- Katz SK, Lavack AM. Tobacco related bar promotions: insights from tobacco industry documents. *Tob Control*. **2002**;11(Suppl. I):i92-i101.
- Lantz PM. Smoking on the rise among young adults: Implications for research and policy. *Tob Control*. **2003**;12(suppl 1): i60-i70.
- Perry CL. The tobacco industry and underage youth smoking: tobacco industry documents from the Minnesota litigation. *Arch Pediatr Adolesc Med*. **1999**;153:935-941.
- Pollay RW. Targeting youth and concerned smokers: evidence from Canadian tobacco industry documents. *Tob Control*. **2000**;9:136-447.
- Rigotti NA, Lee JE, Wechsler H. U.S. College students' use of tobacco products: results of a national survey. *JAMA*. **2000**;284:699-705.
- Schofield PE, Borland R, Hill DJ, Pattison PE, Hibbert ME. Instability in smoking patterns among school leavers in Victoria, Australia. *Tob Control*. **1998**;7:149-55.
- Sepe E, Ling PM, Glantz SA. Smooth moves: Tobacco bars and nightclub promotions target young adults. *Am J Public Health*. **2002**;92:414-419.
- US Department of Health and Human Services (USDHHS). *Preventing Tobacco Use Among Young People: A Report of the Surgeon General*. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; **1994**.

Wechsler H, Rigotti N, Gledhill-Hoyt J, et al. Increased levels of cigarette use among college students. *JAMA*. **1998**;280:1673-1678

Chapter 4

Young Adults: Smoking Behavior and Attitudes Among Current Smokers

| | |
|---|-------------|
| KEY FINDINGS | 4-2 |
| Introduction | 4-3 |
| 1. Age Group Distribution of Current Smokers | 4-3 |
| 2. Age At Which Smokers Started Smoking..... | 4-5 |
| 3. Quitting History..... | 4-7 |
| 4. Current Consumption and Changes in Consumption | 4-10 |
| 5. Perceptions about Future Smoking..... | 4-11 |
| 6. Perceptions about Own Smoking | 4-12 |
| 7. Purchasing Behavior and Brand Preference | 4-13 |
| 8. Summary..... | 4-14 |
| APPENDIX..... | 4-16 |
| GLOSSARY | 4-17 |
| REFERENCES | 4-18 |

Chapter

4

KEY FINDINGS

Young Adults: Smoking Behavior and Attitudes Among Current Smokers

- 1) Only 4.4% of young adults smoked ≥ 15 cigarettes/day** (23.9% of all smokers in this age group). Further, 7.1% of all young adults were non-daily smokers, representing 40% of all current young adults smokers. Of these non-daily smokers, over half had never smoked on a daily basis.
- 2) Non-daily smokers who have never smoked daily for at least 6 months** (22.4% of young adult smokers) **may never become as addicted as smokers who completed the smoking uptake process during adolescence.**
- 3) Over 70% (71.0%) of young adult smokers have made a quit attempt**, with nearly 60% (59.4%) making an attempt in the past year. Overall, 29.1% of current young adult smokers had stayed off cigarettes for at least 6 months after they became regular smokers, and 14.0% had stayed off for a year or longer. Once-daily non-daily smokers showed the highest percentages for these long-term periods of abstinence (6+ months: 46.3%, 1+years: 23.8%).
- 4) Among those who had ever quit, almost half (45.0%) had in the past stopped smoking temporarily with the intent to resume.** Of these, 37.9% gave health as the reason for stopping, 24.5% said they wanted to prove to themselves that they could do it or control their smoking, and 14.2% said they quit temporarily, because they were going to be with nonsmokers or people who disapproved of their smoking.
- 5) About 80% (82.1%) of once-daily non-daily smokers used to smoke more than they do now.** Currently, on average they consume 65.3 cigarettes/month, compared to 44.9 for never-daily non-daily smokers, 234.4 for light daily smokers and 583.5 for moderate-to-heavy daily smokers. However, 19.1% of smokers said they smoke more now than a year ago, suggesting that some have yet to reach their stable level of cigarette consumption.
- 6) The majority (68.0%) of all young adult smokers said that they would no longer be smoking in 5 years.** However, 42.9% said they wanted to quit but gave no time frame for when they would. Only 1.7% thought they would be smoking more than they do now.
- 7) Nearly all current smokers (94.3%) believed that smoking was harming their health.** Non-daily smokers were less likely than daily smokers to think they were addicted to cigarettes, and were more likely to think that they could quit anytime they wanted.
- 8) Most current smokers usually bought their own cigarettes** (81.9%). This percentage varied by smoking level; while about 95% of daily smokers usually bought their own cigarettes, this percentage was lower for once-daily non-daily smokers (67.5%) and never-daily non-daily smokers (58.9%). The remainder of the non-daily groups may be trying to control their smoking by 'bumming' their cigarettes instead of buying them.

Young Adults: Smoking Behavior and Attitudes Among Current Smokers

Introduction

The final section of Chapter 3 categorized young adults between the ages of 18 and 29 years with respect to their smoking experience and highlighted the volatility of smoking behavior during these years. This chapter focuses on the smoking behavior of young adults classified as current established smokers in the 2002 California Tobacco Survey (CTS).

In 2002, the CTS selected all young adults 18 to 29 years of age for the adult extended interview, and the survey for this age group included an additional section to better understand various aspects of their smoking behavior. Young adults also answered the standard adult extended interview, and some of these data are also included in the analyses of this chapter.

Section 1 of this chapter looks at groups of current smokers by smoking level and compares these groups across age cohorts. Section 2 more fully examines age groups within the young-adult population with respect to age of first smoking and progression to regular smoking (see also Chapter 3). Section 3 examines the quitting history of current smokers and highlights that many stop smoking temporarily with the intention of resuming smoking. Section 4 looks at the current level of consumption in each category and how current levels compare to past levels, and Section 5 looks at smokers' expectations regarding future smoking. Section 6 examines purchasing behavior and brand preference. Section 7 provides a summary of the chapter findings.

1. Age Group Distribution of Current Smokers

Chapter 3 distinguished the following four categories of current established smokers.

Daily Smokers

- (1) **Moderate-to-heavy smokers** (≥ 15 cigarettes/day, 4.4 \pm 0.5% of young adults)
- (2) **Light smokers** (< 15 cigarettes/day, 6.6 \pm 0.6% of young adults)

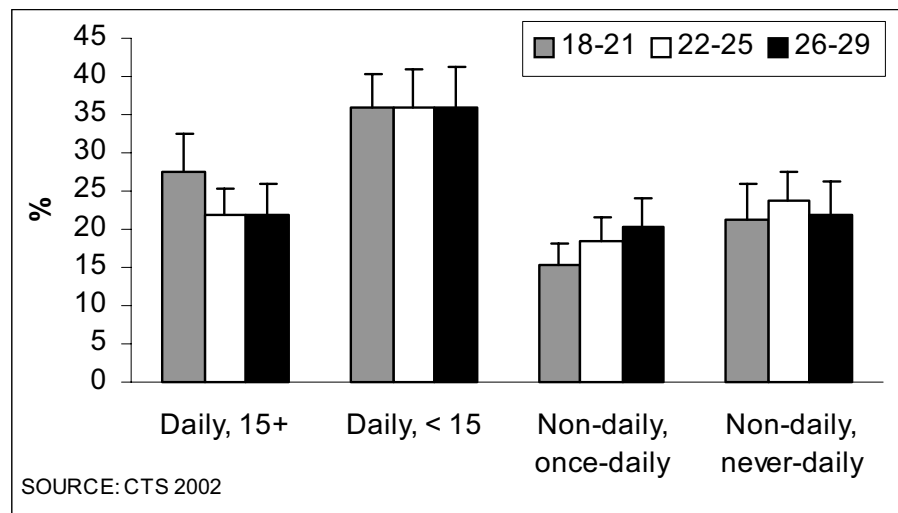
Non-Daily Smokers

- (3) **Once-daily non-daily smokers:** those who had ever smoked daily for six months or longer (3.3 \pm 0.4% of young adults)
- (4) **Never-daily non-daily smokers:** those who had never smoked daily for six months or longer (4.1 \pm 0.6% of young adults)

As young adults complete the smoking uptake process, it would be expected that more would be represented among daily smokers and fewer would remain non-daily smokers. Also, if tolerance develops over time, more young adults might be found among moderate-to-heavy smokers than among lighter smokers. Thus, older age groups would be expected to show higher percentages of daily smokers smoking at higher levels, with non-daily smokers, particularly the never-daily group, more concentrated in the younger age groups.

Figure 4.1 shows the distribution of current smokers by smoking level and age group. For each age group the percentages add to 100%. The percentages of never-daily non-daily smokers were about the same in each age group, and there were slightly higher percentages of once-daily non-daily smokers in older age groups, but the differences were not statistically significant. Light daily smokers were represented equally in all age groups, and there was no suggestion that older young adults have transitioned from light to moderate-to-heavy smoking. In fact, the youngest age group appeared to comprise more moderate-to-heavy daily smokers, but these differences were not statistically significant.

Figure 4.1: Current Smokers by Smoking Level and Age Cohort of Young Adults



| | 18-21 yrs. | 22-25 yrs. | 26-29 yrs. |
|------------------------|------------|------------|------------|
| Daily, 15+ | 27.7 | 22.0 | 21.8 |
| Daily, < 15 | 35.8 | 35.9 | 35.8 |
| Non-daily, once-daily | 15.2 | 18.4 | 20.4 |
| Non-daily, never-daily | 21.3 | 23.7 | 22.0 |

Transitions between smoking level groups complicates the interpretation of Figure 4.1 by masking changes with age. For instance, some non-daily smokers may have transitioned to daily smoking as they aged, and concurrently some daily smokers may have entered the once-daily but currently non-daily groups with little net change observed in either group with time. Also complicating interpretation is the fact that different age groups

experienced different influences during adolescence and afterwards, so what happens in an older age group may not presage the smoking behavior of a young group when it reaches the same age. Nevertheless, there is little indication that the oldest age group is more nicotine dependent than the youngest one.

2. Age At Which Smokers Started Smoking

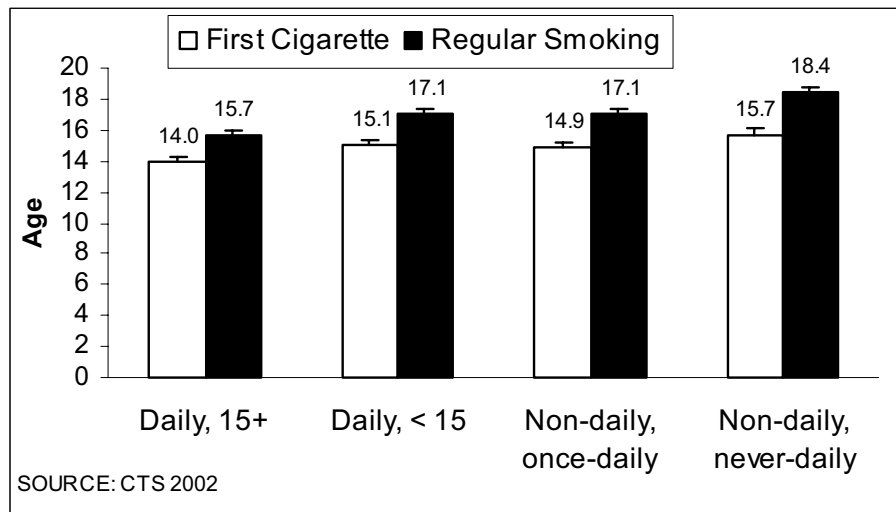
In this section, the age at which smokers first smoked and the age at which they began to smoke regularly (see Chapter 3) are further analyzed for the four categories of current smokers.

In 2002, only about 1 in 10 non-daily smokers indicated that they had never smoked regularly.

When questioned about how old they were when they began to smoke regularly, some people answered that they had never smoked on a regular basis. While all current daily smokers indicated they had smoked regularly, 11.6±3.2% of current non-daily smokers indicated they had never smoked regularly, and nearly all of these were in the group that had never smoked daily for at least 6 months. Smokers reporting that they had never smoked regularly were excluded from the following analyses.

Figure 4.2 plots the mean age of smoking the first cigarette and smoking on a regular basis.

Figure 4.2: Mean Age of First Cigarette and Regular Smoking by Current Smoking Level in Young Adults



On average, moderate-to-heavy daily smokers began experimenting with cigarettes at a significantly younger age than either light daily smokers or non-daily smokers. However, regardless of the age at which smokers had their first whole cigarette, it took roughly two years on average for them to begin smoking on a regular basis (2.1 ± 0.1 years), although the period was slightly longer for the never-daily non-daily smokers (2.8 ± 0.3 years) compared to the moderate-to-heavy-daily smokers (1.7 ± 0.2 years). Other cross-sectional studies have observed this approximate two-year period for regular smoking to begin

following first experimentation (Baugh et al., 1992; US DHHS, 1994; Flay et al., 1998), but longitudinal studies indicate that the uptake process may last longer for many smokers (Choi et al., 2001). Recall of when the first cigarette was smoked and when smoking became regular may not be very precise (US DHHS, 1994).

Table 4.1 shows the percentage of smokers in each group with various characteristics describing when they had their first whole cigarette and when they began to smoke regularly. In addition, whether or not the respondent smoked a year previously was determined from the answer to the following question:

Were you smoking at all around this time 12 months ago?

| Table 4.1 First Cigarette and Regular Smoking Among Young Adults | | | | | |
|---|--------------|--------------------------------|------------------------------------|------------------------------|-------------------------------|
| | Overall % | Daily | | Non-Daily | |
| | | 15+ Cigarettes per day % | < 15 Cigarettes Per day % | Once-daily >6 months % | Never-daily >6 months % |
| Regular smoking ≤ 15 years | 29.3 (22.7) | 48.9 (25.5) | 29.5 (24.8) | 22.6 (24.4) | 13.3 (24.4) |
| Regular smoking ≥ 18 years | 39.1 (22.9) | 20.7 (24.3) | 43.2 (24.9) | 40.7 (25.9) | 50.9 (26.1) |
| First cigarette ≥ 18 years | 18.9 (22.2) | 9.4 (23.6) | 21.2 (24.3) | 16.2 (24.1) | 27.4 (25.2) |
| Regular smoking in last year | 7.8 (21.7) | 3.0 (21.7) | 7.9 (22.6) | 5.5 (22.7) | 16.3 (25.5) |
| Smoking a year previously | 84.1 (22.3) | 96.8 (22.1) | 89.9 (22.6) | 78.5 (24.7) | 65.7 (27.1) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 2002

Nearly half of the moderate-to-heavy daily smokers started smoking regularly at age 15 or younger, but significantly lower percentages started this early in the other groups. Among the never-daily non-daily smokers only 13.324.4% started regular smoking that young, over a quarter had their first cigarette at age 18 or older, and about half became regular smokers at age 18 or older. These percentages are significantly higher than for daily smokers, indicating that many of these smokers have yet to complete the smoking uptake process. Relatively low percentages of all smokers reported starting regular smoking within the past year, but the percentage was significantly higher for the never-daily non-daily smokers than for the other groups. Finally, while about 90% of daily smokers were smoking a year previously, significantly fewer non-daily smokers were. While some smokers in all groups were likely in the midst of a significant quit attempt a year previously that was long enough for them to recall, a larger fraction in the never-daily group likely had not yet started regular smoking.

Previous research indicates that smokers who begin smoking at older ages tend to achieve lower levels of daily consumption during adulthood and may find it easier to quit (Taioli & Wynder, 1991; Breslau et al., 1993; Breslau & Johnson, 1996; Johnson et al., 2002). A large percentage of Californians who are current smokers appear to be completing the smoking uptake process as young adults, rather than completing the process during adolescence. The tobacco control environment they experienced while coming of age in

California may have prolonged their uptake period, or perhaps the tobacco industry is responsible through its promotions targeted at young adults (Katz & Lavack, 2002; Sepe et al., 2002). Regardless, it is unlikely that today's young adult smokers in California will reach the high levels of consumption smokers in the mid-1900s experienced nationwide (US DHHS, 1989). If so, lower consumption and earlier quitting will eventually lead to less smoking-related morbidity and mortality.

3. Quitting History

Chapter 8 shows that recent quitting activity is higher among younger compared to older adults. During the smoking uptake process, smokers may smoke sporadically, and periods of abstinence may or may not be considered an attempt to quit smoking. Instead, such periods may be viewed simply as a period when they just didn't smoke. Yet, a quit attempt by young adults who are daily smokers can be interpreted as for any other adult.

In the 2002 CTS all adults who were current smokers were asked the following:

During the past 12 months, have you quit smoking intentionally for one day or longer?

Those who answered no to this question were asked the following:

In your whole life, have you ever made a serious attempt to quit smoking?

Those who answered no to the second question were also asked the following:

Have you ever seriously considered quitting?

In addition, smokers with a quit attempt were asked the following:

Since you started smoking regularly what is the longest time you have ever gone without smoking a cigarette?

Finally, in the 2002 CTS, young adult current smokers who had made a quit attempt were asked the following:

Previously you indicated that you quit smoking for a while in the past. Did you ever just stop temporarily with the intention to resume?

Why did you want to stop temporarily?

The first row of **Table 4.2** below gives the percentage of current smokers who have ever made or even considered making a quit attempt. The next row shows the percentage that had actually made one, the third row shows the percentage with a quit attempt in the past year, and the last row shows the percentages of those with a quit attempt ever who stopped temporarily with the intent to resume.

| Table 4.2 Quitting History of Young Adults | | | | | |
|---|--------------|--------------------------------|---------------------------------|------------------------------|-------------------------------|
| | Overall % | Daily | | Non-Daily | |
| | | 15+ Cigarettes per day % | < 15 Cigarettes per day % | Once-daily >6 months % | Never-daily >6 months % |
| Ever considered or quit | 77.4 (±2.3) | 86.5 (±3.8) | 84.9 (±3.4) | 77.7 (±4.3) | 55.3 (±6.5) |
| Ever made a quit attempt | 71.0 (±2.4) | 74.3 (±4.9) | 79.2 (±3.8) | 73.9 (±4.9) | 51.8 (±6.4) |
| Made attempt in last year | 59.4 (±2.7) | 53.6 (±5.8) | 66.1 (±3.5) | 66.8 (±5.0) | 48.9 (±6.4) |
| Stopped temporarily* | 45.0 (±2.9) | 37.1 (±6.4) | 45.1 (±4.8) | 50.3 (±7.3) | 51.4 (±8.0) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 2002

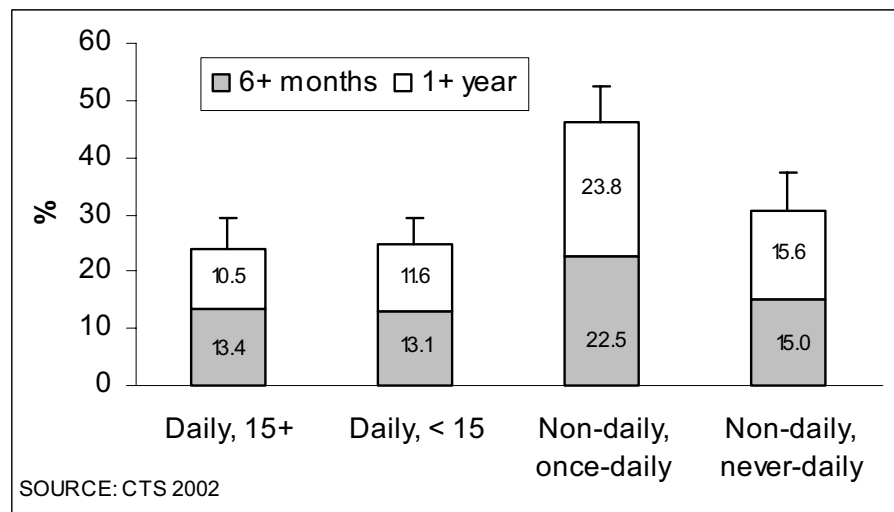
* OF THOSE WITH A QUIT ATTEMPT

Nearly 60% of current young adult smokers have tried to quit in the last year.

Perhaps because they are beyond the uptake phase, considering quitting or having made a quit attempt was observed more among daily or once-daily smokers than among never-daily non-daily smokers. Yet, a recent attempt in the last year was significantly more frequent among light daily and once-daily non-daily smokers than the other groups. Regardless, a high percentage in all groups had made an attempt to quit in the past year.

The total height of the bars in **Figure 4.3** shows the percentages in each group who have stayed off cigarettes for six months or longer since starting to smoke regularly, with the shaded portion of the bar indicating the percentage reporting staying off for a year or longer.

Figure 4.3: Young Adult Current Smokers Quit for Six Months or Longer in Past



Nearly half of current smokers with a past quit attempt had stopped smoking temporarily with the intention to resume, and a quarter of these said the reason was to prove to themselves that they could.

Overall, 29.1±3.1% of current young adult smokers have stayed off cigarettes for at least six months since becoming regular smokers, and 14.0±2.3% had stayed off for a year or longer. About a quarter of the daily smokers have quit for a period of six months, and of these, about 40% had stayed off cigarettes for a year or more. However, among the once-daily non-daily smokers, nearly half had quit for six months or more and over half of these for a year or longer. Clearly this group, with significantly higher percentages than the others, includes both people reducing from daily smoking and relapsing from a significant period of cessation perhaps after having smoked daily. The percentages among the never-daily non-daily smokers were lower but in the same proportion, and may represent periods of intermittent smoking among those yet to complete the smoking uptake process.

Table 4.2, above, indicates that nearly half of all current smokers who had ever made a quit attempt had stopped temporarily at some point with the intention to resume smoking. This practice was somewhat common among all groups and not statistically different.

Table 4.3 shows the reasons smokers gave for stopping temporarily. The most common reason was because of health, with some people indicating that they wanted to ‘detoxify their bodies.’ The next most cited reason was to prove to themselves that they could do it or to control their smoking.

There were few differences by smoking level category. Light daily smokers were more likely to indicate they stopped for pregnancy (13.2±6.1%), and less likely to stop just to prove they could (18.2±5.7%).

The degree of quitting and stopping temporarily documented above in the young adult population was unexpected. Whether it has always been present and just never measured or whether it reflects behavior in the tobacco control era is unknown. Many young adults appear to be struggling greatly with incipient nicotine dependence.

| Table 4.3 Reasons Young Adults Reported for Stopping Smoking Temporarily | |
|---|-------------|
| Reason | % |
| For health reasons | 37.9 (±5.1) |
| Wanted to prove I could or control smoking | 24.5 (±4.3) |
| Was going to be with nonsmokers or someone who disapproved of my smoking | 14.2 (±2.8) |
| Because of pregnancy | 7.7 (±3.3) |
| Didn't need or want to smoke, tired of smoking | 5.6 (±1.6) |
| Was prohibited from smoking (jail, military, etc.) | 5.6 (±2.3) |
| For sports, sports season | 4.8 (±2.1) |
| To hunt for a job or for work reasons | 1.9 (±1.0) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 2002

4. Current Consumption and Changes in Consumption

Current cigarette consumption was computed on a cigarettes per month basis to better illustrate the differences in consumption levels between daily and non-daily smokers. For non-daily smokers, the number of days smoked in the last month was multiplied by the number of cigarettes usually smoked on those days. For daily smokers, the average daily consumption was multiplied by 30 days.

Smokers were also asked about their present smoking level compared to the past:

Have you ever smoked more cigarettes per day than you do now?

And

Compared to last year at this time, would you say you are smoking now...

The same as you were smoking,

More than you were smoking, or

Less than you were smoking?

Table 4.4 shows the monthly consumption of cigarettes for each category of smokers.

In 2002, under 10% of young adults who smoked 15 or more cigarettes per day smoked more than a pack per day.

Moderate-to-heavy daily smokers smoked over 12 times as many cigarettes per month as never-daily non-daily smokers. Only 9.3% of the moderate-to-heavy daily smokers smoked more than a pack/day. The consumption patterns of non-daily smokers are better understood by looking at the group below the median. Among the never-daily non-daily smokers, 50% smoked on 10 or fewer days in the past month, and on days when smoking took place, 50% or less said they had just one or two cigarettes. For the once-daily non-daily smokers, 50% smoked on 15 or fewer days, and on those days 50% had three or fewer cigarettes.

As Table 4.4 shows, substantial percentages of light daily smokers and non-daily smokers indicated that they now smoke less than they did sometime in the past. This was particularly true for the once-daily non-daily smokers, who showed a significantly higher rate of now smoking less than the other groups, probably because of their switch to non-daily smoking. Over a quarter of the moderate-to-heavy daily smokers and nearly a fifth of the light daily smokers reported that they now smoked more than a year ago, which may reflect the development of tolerance in some smokers (USDHHS, 1988) and suggests that they have nearly completed the smoking uptake process. Overall, only 35.3% smoked the same amount as a year previously, underscoring the changes (or perceived changes) in smoking behavior these young adults were experiencing.

Table 4.4
Smoking Level History in Young Adults

| | Overall % | Daily | | Non-Daily | |
|---|--------------|--------------------------------|---------------------------------|------------------------------|-------------------------------|
| | | 15+ Cigarettes per day % | < 15 Cigarettes per day % | Once-daily >6 months % | Never-daily >6 months % |
| Current consumption, mean cigarettes/month | | 583.5 (∂16.2) | 234.4 (∂8.8) | 65.3 (∂10.8) | 44.9 (∂9.1) |
| Ever smoked more than now % | 65.0 (∂2.8) | 59.5 (∂6.2) | 73.0 (∂4.6) | 82.1 (∂4.2) | 44.3 (∂5.8) |
| Compared to last year, I now | | | | | |
| Smoke same % | 35.3 (∂2.6) | 51.8 (∂5.5) | 37.1 (∂4.7) | 14.0 (∂4.0) | 31.6 (∂4.5) |
| Smoke less % | 45.1 (∂2.5) | 22.2 (∂4.8) | 43.1 (∂4.7) | 71.6 (∂4.9) | 51.7 (∂4.9) |
| Smoke more % | 19.1 (∂2.2) | 26.0 (∂4.6) | 19.4 (∂4.2) | 13.3 (∂4.2) | 15.7 (∂3.9) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 2002

Those who indicated that they smoked more now than a year previously were asked why, and the most frequently cited reason was stress (43.2∂6.0%), with 19.9∂5.1% indicating the reason as being around smokers more often, and 15.4∂4.6% indicating that they seemed to need to smoke more, a sign of developing tolerance (US DHHS, 1988).

5. Perceptions about Future Smoking

Young adult smokers were also asked about their smoking in the future.

Think ahead to 5 years from now. In terms of smoking, what do you think you will be doing? Would you say you would be smoking. . .

The same as you are now smoking,

More than you are now smoking,

Less than you are now smoking, or

Not at all, would have quit?

In another part of the survey they were asked about specific quit intentions:

What best describes your intentions regarding quitting? Would you say you. . .

Never expect to quit,

May quit in the future but not in the next 6 months,

Will quit in the next 6 months, or

Will quit in the next month?

The majority of all young adult smokers thought that they would no longer be smoking in 5 years.

Table 4.5 shows that between 60 and 75% of young adult current smokers think they will be quit in 5 years, and only very small percentages think they will be smoking more in 5 years than they do now. However, when examining specific intentions to quit, many smokers, particularly daily smokers, were reluctant to give a time frame. The once-daily non-daily smokers were significantly more likely than other groups to say they want to quit in the next month. This finding suggests that the transition to non-daily smoking is a step toward cessation for many of these smokers.

| Table 4.5 Young Adult Smokers' Perceptions about Future Smoking | | | | | |
|--|------------------|--------------------------------|---------------------------------|------------------------------|-------------------------------|
| | Overall % | Daily | | Non-Daily | |
| | | 15+ Cigarettes per day % | < 15 Cigarettes per day % | Once-daily >6 months % | Never-daily >6 months % |
| In 5 years, will be... | | | | | |
| Smoking same as now | 12.1 (∂1.9) | 16.7 (∂4.7) | 9.4 (∂2.8) | 8.8 (∂3.0) | 14.2 (∂4.2) |
| Smoking less | 18.2 (∂2.2) | 19.7 (∂5.4) | 13.7 (∂3.0) | 18.6 (∂4.4) | 23.5 (∂4.6) |
| Smoking more | 1.7 (∂0.7) | 3.0 (∂1.8) | 1.7 (∂1.6) | 0.4 (∂0.6) | 1.1 (∂1.1) |
| Will have quit | 68.0 (∂2.6) | 60.6 (∂5.9) | 75.2 (∂ 4.7) | 72.2 (∂4.5) | 61.2 (∂5.7) |
| Quitting intentions | | | | | |
| Never | 5.5 (∂1.3) | 6.3 (∂2.3) | 3.2 (∂1.7) | 4.9 (∂2.7) | 8.9 (∂3.2) |
| Sometime, not within 6 months | 42.9 (∂3.2) | 50.7 (∂5.9) | 46.7 (∂4.6) | 31.2 (∂5.1) | 37.9 (∂6.3) |
| Within 6 months | 33.3 (∂2.8) | 31.6 (∂6.3) | 37.4 (∂4.9) | 30.3 (∂6.5) | 30.8 (∂5.4) |
| Within 1 month | 18.3 (∂2.0) | 11.4 (∂3.9) | 12.6 (∂3.2) | 33.6 (∂4.9) | 22.4 (∂5.1) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 2002

These findings suggest that outreach to young adult smokers regarding the addictive nature of cigarettes is important. They may need help to acknowledge their growing addiction to sufficiently motivate them to deal with it more effectively. Even though many have attempted to quit, they may attribute their lack of success to being improperly motivated rather than to being addicted. Also, information regarding available smoking cessation assistance may be well received and result in more successfully quitting.

6. Perceptions about Own Smoking

To determine how smokers think about their own smoking, several questions were relevant. Smokers were asked to agree or disagree with the following statements:

My smoking is harming my health.

I could quit smoking for good anytime I wanted to.

I believe that I am addicted to cigarettes.

Smoking helps me control my stress.

In 2002, nearly 95% of all current young adult smokers believed that smoking was harming their health.

Table 4.6 shows that over 90% of all smokers in each category believed that their smoking was harming their health. Also, it shows that smokers' beliefs about whether they could quit anytime they wanted or are addicted to cigarettes were significantly related to smoking category. While fewer once-daily non-daily smokers believed they were addicted to cigarettes than daily smokers, never-daily non-daily smokers were the least likely to believe they were addicted to cigarettes and the most likely to think they could quit anytime they wanted. Smoking to control stress occurred significantly more among daily smokers than non-daily smokers.

Table 4.6
Young Adults' Perceptions about Own Smoking

| | Overall % | Daily | | Non-Daily | |
|---------------------------------|--------------|--------------------------------|---------------------------------|------------------------------|-------------------------------|
| | | 15+ Cigarettes per day % | < 15 Cigarettes per day % | Once-daily >6 months % | Never-daily >6 months % |
| I could quit anytime I wanted | 51.5 (±2.9) | 34.5 (±5.9) | 43.4 (±4.8) | 59.3 (±6.8) | 76.6 (±6.7) |
| I am addicted to cigarettes | 58.8 (±3.3) | 83.4 (±5.4) | 74.5 (±5.0) | 39.5 (±7.0) | 23.0 (±5.2) |
| Smoking is harming my health | 94.3 (±1.1) | 96.0 (±1.7) | 96.1 (±2.1) | 90.4 (±4.1) | 92.6 (±2.5) |
| Smoking helps control my stress | 65.8 (±3.4) | 79.5 (±5.2) | 72.2 (±5.0) | 56.8 (±5.5) | 48.3 (±6.7) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 2002

7. Purchasing Behavior and Brand Preference

Other data sources indicate that adolescents overwhelmingly prefer Marlboro, with Camel and Newport as distant second and third choices (US DHHS, 1994; Cummings et al., 1997). To determine whether these same preferences are present among young adults, the answers to the following questions were examined:

Do you generally buy your own cigarettes or get them from others?

What brand of cigarettes do you usually smoke?

Overall, 81.9±2.2% of smokers indicated that they usually bought their own cigarettes.

Nearly 60% of never-daily non-daily smokers do not routinely buy their own cigarettes.

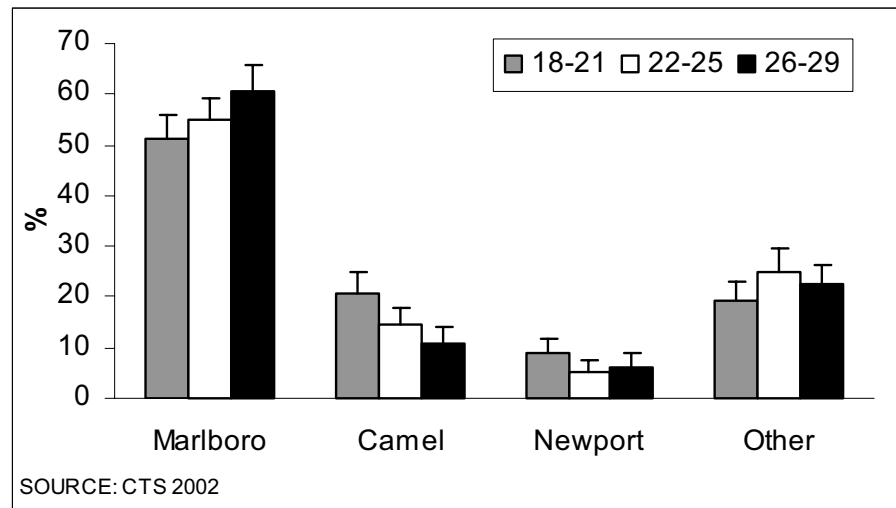
However, this percentage varied by smoking category: while about 95% of daily smokers usually bought their own cigarettes (moderate-to-heavy, 95.4±2.4%; light, 94.6±2.4%), these percentages were significantly lower for once-daily non-daily smokers (67.5±5.5%) and never-daily non-daily smokers (58.7±6.9%). The remainder of the non-daily groups were likely trying to control their smoking by not buying cigarettes, and instead getting them from others in social settings when they want to smoke.

There were few differences in brand preference by smoking category, although moderate-to-heavy smokers were more likely than light smokers to prefer Camels, and non-daily

smokers were significantly more likely to say they smoke another brand or whatever is available (see Appendix Table A.4.1).

Figure 4.4 indicates that Marlboro's popularity appears to increase significantly during young adulthood, with corresponding significant declines for Camel.

Figure 4.4 Brand Preference by Age Cohort of Young Adults



| | 18-21 yrs. | 22-25 yrs. | 26-29 yrs. |
|----------|------------|------------|------------|
| Marlboro | 51.3 | 55.1 | 60.8 |
| Camel | 20.5 | 14.7 | 10.8 |
| Newport | 8.9 | 5.2 | 6.1 |
| Other | 19.3 | 25.0 | 22.3 |

8. Summary

In 2002, young adults who were current established smokers were not a homogenous group. They ranged from daily smokers with moderate-to-heavy cigarette consumption (4.4 \pm 0.5% of the population) to light cigarette consumption (6.6 \pm 0.6%), to non-daily smokers classified as once-daily (3.3 \pm 0.4%) and never-daily (4.1 \pm 0.6%). Evidence from Chapter 2 and data presented here provide no evidence that young adult smokers are becoming more addicted as they age. In fact, completion of the smoking uptake process may be delayed for many. Whether this delay is because of California's tobacco control environment, including smoking restrictions, or tobacco industry marketing activities targeted at young adults is unknown.

Most young adult smokers are struggling with their incipient addiction, trying to quit or to control their smoking by reducing consumption. Over 70% (71.0 \pm 2.4%) have made a quit attempt in the past, with nearly 60% (59.4 \pm 2.7%) making an attempt in the past year. Overall, 29.1 \pm 3.1% of current young adult smokers have stayed off cigarettes for at least six months since becoming a regular smoker, and 14.0 \pm 2.3% have stayed off for a year or

longer. Once-daily non-daily smokers showed the highest percentages (6+ months: 46.3 \pm 6.0%, 1+years: 22.5 \pm 6.3%). Nearly 70% (68.0 \pm 2.6%) of all young adult current smokers said that they would no longer be smoking in five years. However, 42.9 \pm 3.2% said they wanted to quit but gave no time line for when they would.

Only 1.7 \pm 0.7% thought they would be smoking more in five years than they do now. Over 70% (71.6 \pm 4.9%) of once-daily non-daily smokers indicated that they used to smoke more than they do now. However, 13 to 26% of smokers, depending on smoking level, said they smoke more now than a year previously, suggesting the development of tolerance for some.

Among those who had ever quit, 45.0 \pm 2.9% indicated that they had in the past stopped smoking temporarily with the intent to resume. Of these, 37.9 \pm 5.1% gave health as the reason, 24.5 \pm 4.3% said they wanted to prove to themselves that they could do it or control their smoking, and 14.2 \pm 2.8% said they quit temporarily because they were going to be with nonsmokers or people who disapproved of their smoking. Other reasons included pregnancy (7.7 \pm 3.3%), and fatigue with smoking (5.6 \pm 1.6%).

Overall, 94.3 \pm 1.1% of all current smokers believed that smoking was harming their health. Non-daily smokers were less likely than daily smokers to think they were addicted to cigarettes, and were more likely to think that they could quit anytime they wanted. Daily smokers were more likely to say they used smoking to control stress.

The struggle to quit or to control their smoking may be more intense in this current generation of young adults than in previous generations because of the tobacco control interventions implemented in California over the past decade. Data from the 1980s or from other states with little tobacco control activity would be required to verify this. However, as indicated above, there is no evidence that these young adults are headed for the high level of addiction observed in the US in the mid-1900s (USDHHS, 1989).

Catching young adults before they complete the smoking uptake process to prevent them from becoming long-term addicted smokers should be an important tobacco control goal. Smoking cessation programs designed and targeted to young adults may help them in their struggle to successfully win the battle with nicotine addiction. The pay-off in terms of prevention of future smoking-related diseases would be immense.

Chapter

4

APPENDIX

Young Adults: Smoking Behavior and Attitudes Among Current Smokers

Table A.4.1 shows the brands usually purchased by the different groups of current young adult smokers. Significantly fewer non-daily smokers usually bought their own cigarettes compared to daily smokers. Marlboro was about equally preferred among all the groups. Camel was most popular with the moderate-to-heavy daily smokers, and this percentage was significantly higher than for the non-daily smokers. The other brand category includes smokers who indicated that they smoked whatever was available.

| Table A.4.1 Young Adult Purchasing Behavior and Brand Preference | | | | | |
|---|--------------|--------------------------------|---------------------------------|------------------------------|-------------------------------|
| | Overall % | Daily | | Non-Daily | |
| | | 15+ Cigarettes per day % | < 15 Cigarettes per day % | Once-daily >6 months % | Never-daily >6 months % |
| Usually buy own cigarettes | 81.9 (22.2) | 95.4 (22.4) | 94.6 (22.4) | 67.5 (25.5) | 58.9 (26.9) |
| Brand Preference | | | | | |
| Marlboro | 55.3 (22.5) | 53.2 (26.0) | 59.5 (23.7) | 53.0 (25.7) | 52.7 (26.4) |
| Camel | 15.6 (22.2) | 23.5 (25.5) | 15.4 (23.1) | 12.7 (23.9) | 10.0 (23.6) |
| Newport | 6.8 (21.2) | 6.3 (22.9) | 7.3 (21.9) | 7.8 (24.3) | 5.6 (22.9) |
| Other | 22.3 (22.7) | 17.0 (24.5) | 17.9 (23.6) | 26.5 (24.7) | 31.7 (25.3) |

TABLE ENTRIES ARE PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 2002.

Glossary

Young Adults (see also Table 3.1)

Current smoker – has smoked at least 100 cigarettes in his or her lifetime and smokes now (old question) or now either everyday or some days (new question) at the time of the survey.

Daily smoker – a *current smoker* who has smoked on every day of the past month (old question sequence) or who now smokes every day (new question).

Light daily smoker – a *current smoker* who consumes <15 cigarettes/day.

Moderate-to-heavy daily smoker – a *current smoker* who consumes ≥ 15 cigarettes/day.

Non-daily smoker – a *current smoker* who smoked on at least 1 day but less than 30 days in the past month (old question sequence) or who says he or she now smokes some days (new question).

Never-daily non-daily smoker – a *current smoker* who has never smoked daily for a period of at least 6 months.

Once-daily non-daily smoker – a *current non-daily smoker* who has in the past smoked daily for a period of at least 6 months.

References

- Baugh JG, Hunter SM, Webber LS, Berenson GS. Developmental trends of first cigarette smoking experience of children: The Bogalusa Heart Study. *Am J Public Health*. **1992**;72:1161-1164.
- Breslau N, Genn N, Peterson EL. Early smoking initiation and nicotine dependence in a cohort of young adults. *Drug Alcohol Depend*. **1993**;33:129-127.
- Breslau N, Peterson EL. Smoking cessation in young adults: age at initiation of cigarettes smoking and other suspected influences. *Am J Public Health*. **1996**;86:214-220.
- Choi WS, Gilpin EA, Farkas AJ, Pierce JP. Determining the probability of future smoking among adolescents. *Addiction*. **2001**;96:313-323.
- Cummings KM, Hyland A, Pechacek TF, Orlandi M, Lynn WR. Comparison of recent trends in adolescent and adult cigarette smoking behaviour and brand preferences. *Tob Control*. **1997**;6 Suppl 2:S31-S37.
- Flay BR, Phil D, Hu FB, Richardson J. Psychosocial predictors of different states of cigarette smoking among high school students. *Prev Med*. **1998**;27:a9-a18.
- Johnson EO, Chase GA, Breslau N. Persistence of cigarette smoking: familial liability and the role of nicotine dependence. *Addiction*. **2002**;97:1063-1070.
- Katz SK, Lavack AM. Tobacco related bar promotions: insights from tobacco industry documents. *Tob Control*. **2002**;11(Suppl. I):i92-i101.
- Sepe E, Ling PM, Glantz. Smooth moves: Tobacco bars and nightclub promotions target young adults. *Am J Public Health*. **2002**;92:414-419.
- Taioli E, Wynder EL. Effect on the age at which smoking begins on frequency of smoking in adulthood. *N Eng J Med*. **1991**;325:968-969.
- US Department of Health and Human Services (USDHHS). *The Health Consequences of Smoking. Nicotine Addiction. A Report of the Surgeon General*. Rockville, MD: U.S. Department of Health and Human Services. Public Health Service, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; **1988**.
- US Department of Health and Human Services (USDHHS). *The Health Consequences of Smoking. 25 Years of Progress. A Report of the Surgeon General*. Rockville, MD: U.S. Department of Health and Human Services. Public Health Service, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; **1989**.

US Department of Health and Human Services (USDHHS). *Preventing Tobacco Use Among Young People. A Report of the Surgeon General*. Atlanta, GA: U.S. Department of Health and Human Services. Public Health Service, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; **1994**.

Chapter 5

Young Adults: Social Smoking and Tobacco Promotions at Bars or Clubs

| | |
|--|-------------|
| KEY FINDINGS | 5-2 |
| Introduction..... | 5-3 |
| 1. Situations in Which Young Adults Smoke..... | 5-4 |
| 2. Social Smoking..... | 5-5 |
| 3. Young Adult Attendance at Bars or Clubs..... | 5-7 |
| Enjoyment of Drinking While Smoking | 5-7 |
| Attendance at Bars or Clubs..... | 5-8 |
| 4. Recall of Tobacco Industry Promotions in Clubs or Bars | 5-10 |
| 5. Receptivity and Attitudes Toward Tobacco Companies and Promotions..... | 5-12 |
| 6. Summary | 5-14 |
| APPENDIX | 5-15 |
| 1. Social Smokers Compared to Other Smokers in Demographic Subgroups | 5-15 |
| 2. Bar or Club Attendance in Demographic Subgroups | 5-16 |
| 3. Receptivity and Attitudes Toward Tobacco Industry | 5-17 |
| GLOSSARY | 5-18 |
| REFERENCES | 5-19 |

Chapter

5

KEY FINDINGS

Young Adults: Social Smoking and Tobacco Promotions at Bars or Clubs

- 1) **In 2002, nearly a third of young adult smokers reported that they only smoked when others were smoking (31.0%).** Non-daily smokers who confined their smoking in this manner were defined as social smokers.
- 2) **Social smokers smoked only about half the number of cigarettes per month (23.3 cigarettes/month) as other non-daily smokers (55.1 cigarettes/month), and they were more likely to smoke mostly on weekends.** Compared to other non-daily smokers, fewer social smokers reported ever being regular smokers, thought themselves to be addicted, or thought smoking was harming their health, and they were more likely to think they could quit anytime they wanted.
- 3) **There is a strong relationship between drinking and smoking in young adults.** While daily smokers were more likely to agree that they enjoyed smoking while drinking (86.8%), 69.1% of social smokers and 61.1% of other non-daily smokers also agreed. Smokers 18-21 years, mostly under the legal age for drinking, also showed a high percentage who enjoyed smoking while drinking (72.4%).
- 4) **About one third (33.8%) of young adults said they went to bars or clubs frequently or sometimes.** Attendance was highest among current smoker groups ($\geq 50\%$ attended) and was also high among ex-smokers and ex-experimenters at risk for future smoking (~42-43% attended). Fewer than 30% of never smokers attended bars or clubs at least sometimes.
- 5) **Recall of seeing cigarette advertising or promotions in bars or clubs was high (57.9% overall), regardless of risk for future smoking.**
- 6) **Nearly half of bar or club goers reported seeing someone smoking inside, and almost all recalled seeing someone smoking just outside the door (49.1% and 96.9%, respectively).** If bar or club goers recalled seeing someone smoking inside, the percentage who recalled seeing cigarette advertising or promotions was higher than if they did not report seeing someone smoking inside (65.0% vs. 51.2%); but this may not have been in the same establishment.

Young Adults: Social Smoking and Tobacco Promotions at Bars or Clubs

Introduction

Chapters 3 and 4 clearly indicate that young adulthood is a volatile period with respect to smoking behavior. Some evidence presented suggests that the smoking uptake process may extend more into the young adult years now than it did in the early 1990s. This may have occurred because today's young Californians have matured in a tobacco control environment that was not experienced by generations who came of age in the 1970s and 1980s. Alternatively, the extension of the smoking uptake process suggests that the tobacco industry's recent efforts at targeting young adults has been successful, a focus the industry adopted since its advertising and promotion aimed at adolescents has been largely thwarted. This chapter examines smoking in social settings, delineates the link between smoking and drinking, and describes what young adults recall about seeing tobacco promotions in bars or clubs.

Sporadic or occasional smoking typically characterizes the smoking uptake process. In recent years, however, research has identified a group of adult smokers (>25 years) who are non-daily smokers and who have never smoked daily for a prolonged period of time (Gilpin et al., 1997). Recent studies have characterized a type of young adult smoker who smokes primarily in social situations (Rollins et al., 2002; Moran et al., 2003), and it is likely that many of these social smokers would fit into the never-daily non-daily smoking category. The population-based 2002 California Tobacco Survey (CTS), with its special set of questions for young adults 18 to 29 years of age, can provide more information on this type of smoker in the overall young adult population.

Bars and clubs provide an ideal venue for the tobacco industry to promote smoking. They afford a direct reach to a group of adults of a similar age and socioeconomic background (Katz & Lavack, 2002; Ling & Glantz, 2002; Sepe et al., 2002). Such an environment can both promote and reinforce smoking behavior as part of youth culture. In California, bars and clubs have been smoke-free since 1998, which occurred by law to protect nonsmoking indoor workers from secondhand smoke. To some extent, this law should serve to decouple smoking and drinking more here than in other parts of the US.

Section 1 of this chapter examines the settings in which young adults smoke, and Section 2 identifies and characterizes a group of non-daily smokers that smokes exclusively in social settings. Section 3 explores the relationship between smoking and drinking among young adults. Section 4 provides data on young adult bar or club goers recall of tobacco promotions in this setting. Finally, Section 5 explores young adults' receptivity to tobacco promotions and attitudes towards the tobacco industry and smoking. Section 6 provides a chapter summary.

1. Situations in Which Young Adults Smoke

As people become more dependent on nicotine, the number of settings in which they smoke will likely increase. However, it is important to both understand the extent and types of settings in which people smoke.

In the 2002 CTS, young adult smokers were asked whether they frequently, sometimes, rarely or never smoked in the following situations.

While socializing with friends

At parties

At clubs/bars

While working/studying

When taking a break at work or school

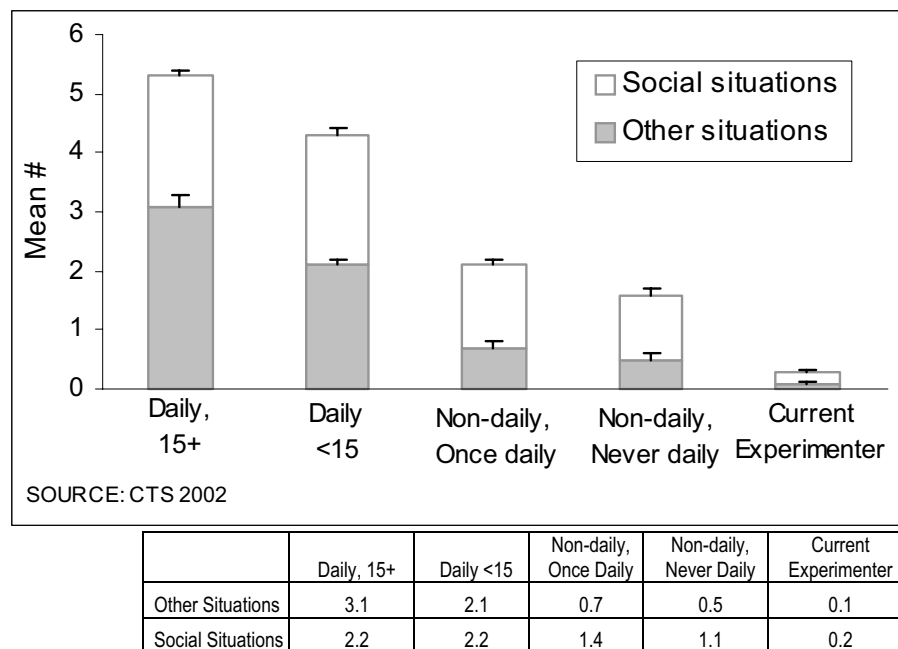
In your home or apartment

Outside in public spaces

Driving in your car.

The number of situations where smokers reported smoking frequently was tallied for each of the categories of current established smoker and for the current experimenters (see Chapters 3 and 4). **Figure 5.1** shows that, as expected, daily smokers indicated more situations in which they frequently smoked. The first three situations listed above are

Figure 5.1: Number of Situations Where Young Adult Smokers Reported Smoking Frequently



purely social settings, and the others may or not be social settings. Tallies were created for the three social settings as well, and the white portion of the bars in the figure indicate the mean number of purely social settings in which smoking frequently occurred.

For the never-daily non-daily smokers, the ratio of social to all situations where the smoker frequently smoked was 0.69, for once-daily non-daily smokers the ratio was 0.67, for light daily smokers it was 0.51, and for moderate-to-heavy smokers it was 0.41. These data point out that smoking among non-daily smokers occurs mainly in social settings. However, many daily smokers do a lot of their smoking in social settings as well.

2. Social Smoking

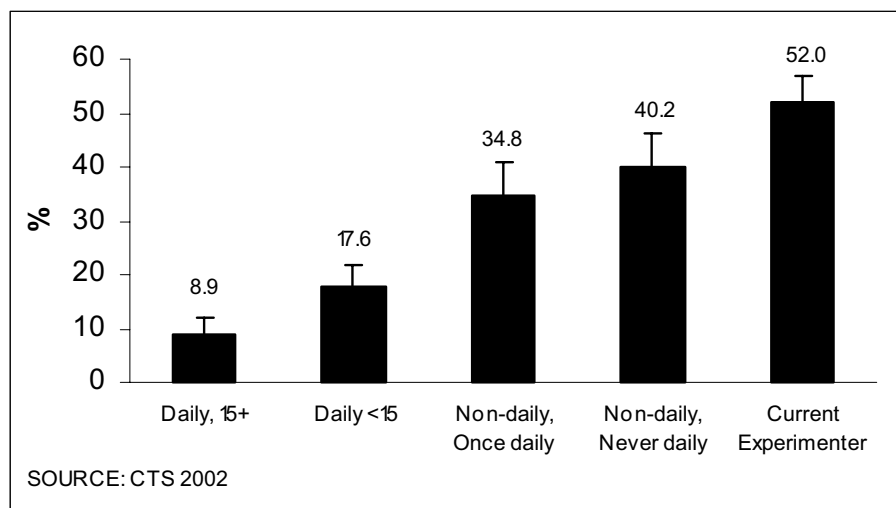
Smoking primarily in social situations carries the risk that smoking will escalate, and the young adult will lose control and continue the process of becoming an addicted smoker. To separate the purely social smokers from smokers who already smoke in other settings, the 2002 CTS asked all current smokers, including current experimenters, to agree or disagree with the statement:

I only smoke when other people are smoking.

Nearly a third (31.0%) of young adult smokers said that they only smoked when others were smoking.

Figure 5.2 shows the percentage of these purely social smokers in each category for current established smokers and for current experimenters. Among young adults, the percentage of current smokers who reported that they only smoke when others are smoking was $31.0 \pm 2.2\%$. The percentage of purely social smokers among the moderate-to-heavy daily smokers was low, but the percentages increased with lower smoking-level categories to over half of the current experimenters.

Figure 5.2: Percentage of Social Smokers in Each Young Adult Smoking Level Category



Because daily smokers have already nearly completed the smoking uptake process, a social smoker will be defined as a non-daily smoker or current experimenter who only smokes when others are smoking. Appendix Table A.5.1 shows the demographic distribution of social, other non-daily smokers, and all daily smokers for comparison.

Smoking behavior and attitude factors presented in Chapter 4 were examined further in non-daily smokers by comparing the purely social smokers to those who also smoke in other settings. In addition to these factors, several questions related to social activities and exposure to smokers in the social environment were also examined.

Please tell me whether you engage in the following activities often, sometimes, rarely, or never...

Go out to eat in a nice restaurant.

Go to bars or clubs.

Date or go out with friends.

Among close relatives...

Among close friend...

Among people you party with...

Among your co-workers...

do all of them smoke?

do most of them smoke?

do most of them not smoke, or

do none of them smoke?

Table 5.1 presents the results of this analysis, but only shows the factors for which the social and other non-daily smokers differed at least marginally. As a point of reference, the table includes a column for all current daily smokers.

While social smokers were more prone to smoking in social situations, the ratio of social settings to all settings where the smoker frequently smoked for the other non-daily smokers was over 0.60, indicating that other non-daily smokers smoke more in social settings than they do otherwise. Over

| Table 5.1 | | | |
|--|-----------------------|--------------------------------|----------------------|
| Characteristics of Social vs. Other Smokers | | | |
| | Social Smokers | Other Non-Daily Smokers | Daily Smokers |
| Situations where smoke | | | |
| Mean number of situations where smoke | 0.84 (0.12) | 1.32 (0.17) | 4.65 (0.15) |
| Mean number of social situations | 0.68 (0.09) | 0.82 (0.11) | 2.09 (0.08) |
| Ratio of social to total situations | 0.81 | 0.62 | 0.45 |
| Smoke mostly on weekends | 53.2 (0.4.7) | 30.4 (0.4.8) | 4.9 (0.1.4) |
| Mean number cigarettes per month | 23.3 (0.5.0) | 55.1 (0.8.6) | 387.5 (0.18.3) |
| Status | | | |
| Current experimenters | 55.6 (0.4.2) | 40.3 (0.5.4) | |
| Never daily | 26.6 (0.4.1) | 32.0 (0.4.9) | |
| Once daily | 17.8 (0.3.1) | 27.8 (0.4.3) | |
| Attitudes | | | |
| Will be quit in 5 years | 59.0 (0.5.4) | 63.3 (0.5.1) | 69.7 (0.3.4) |
| Could quit anytime I wanted | 84.7 (0.3.7) | 71.5 (0.3.8) | 40.3 (0.3.8) |
| Am addicted | 10.0 (0.2.6) | 20.5 (0.3.8) | 77.8 (0.4.0) |
| Smoking is harming my health | 41.2 (0.4.0) | 54.7 (0.5.3) | 96.1 (0.1.3) |
| Other factors | | | |
| Never smoked regularly | 47.0 (0.4.0) | 30.6 (0.4.2) | |
| Buy own cigarettes | 26.0 (0.4.2) | 62.0 (0.4.9) | 94.6 (0.1.8) |
| Never attended college | 40.8 (0.5.6) | 49.6 (0.4.4) | 60.8 (0.3.2) |
| Go to bars or clubs | 55.6 (0.5.2) | 50.4 (0.5.3) | 50.2 (0.3.8) |
| Most/all people socialize with smoke | 54.4 (0.4.6) | 50.5 (0.5.0) | 67.5 (0.3.3) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 2002

half of social smokers mostly smoke on weekends, and this percentage was much lower for the other non-daily smokers. The distribution of the smoking categories among social and other smokers is significantly different, with current experimenters more prevalent among social smokers. In part due to this distribution, the mean number of cigarettes smoked per month by social smokers was less than half that smoked by the other non-daily smokers.

Only 10% of social smokers considered themselves addicted.

Nearly 60% (59.0 ± 5.4) of social smokers believed that they would not be smoking in 5 years. However, compared to daily smokers, social smokers were significantly less likely to think that they would no longer be smoking in 5 years. Likely some social smokers, for whom smoking is a relatively new behavior, have not yet entertained the idea of quitting; almost half said they had never smoked regularly. However, social smokers were significantly more likely to think that they could quit anytime they wanted, less likely to consider themselves addicted to cigarettes, and less likely to think smoking was harmful to their health.

Daily smokers were significantly less likely to have attended college than the social smokers, and while they were also slightly less likely to go to bars or clubs and party with other smokers, the difference was not significant. Over two-thirds of daily smokers said most or all of the people they socialize with were smokers, which was significantly higher than for social smokers and other non-daily smokers.

In general, social smokers appear to be novice smokers who think that they can quit whenever they want and are not too concerned with addiction or the harmful effects of smoking. Whether they can continue to control their smoking or it ends up controlling them is a subject for future research in longitudinal cohorts of social smokers. If there were no social smokers, young adult smoking prevalence would likely be considerably lower. Removing the purely social smokers from the group of current established smokers in 2002 would lower young adult prevalence by a factor of 23.5% from 18.3% to 14.0%.

3. Young Adult Attendance at Bars or Clubs

This section contrasts groups of young adults vulnerable to future smoking or escalation of smoking and those not vulnerable (see Chapter 3) with respect to their attendance at clubs or bars, but first, it looks at the connection between drinking and smoking.

Enjoyment of Drinking While Smoking

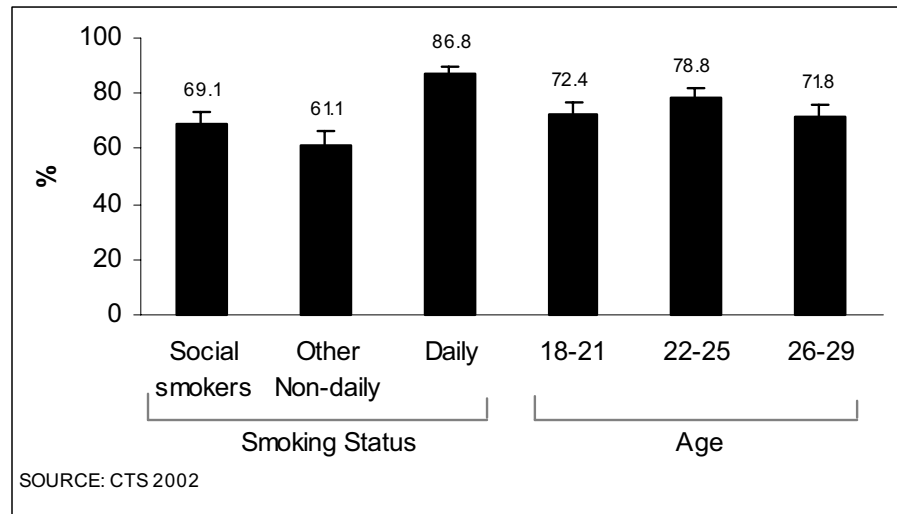
Young adult smokers were asked to agree or disagree with the statement:

I enjoy smoking while drinking.

Overall, $74.5 \pm 2.3\%$ of young adult smokers agreed with this statement. As **Figure 5.3** shows, daily smokers were more likely to agree with this statement, but a high percentage

of social smokers and other non-daily smokers found smoking while drinking enjoyable. It also shows that smokers of all ages (even those under the legal drinking age) indicate that smoking while drinking is enjoyable. Clearly, there is a strong relationship between drinking and smoking in young adults.

Figure 5.3: Young Adult Smokers Who Enjoy Smoking While Drinking



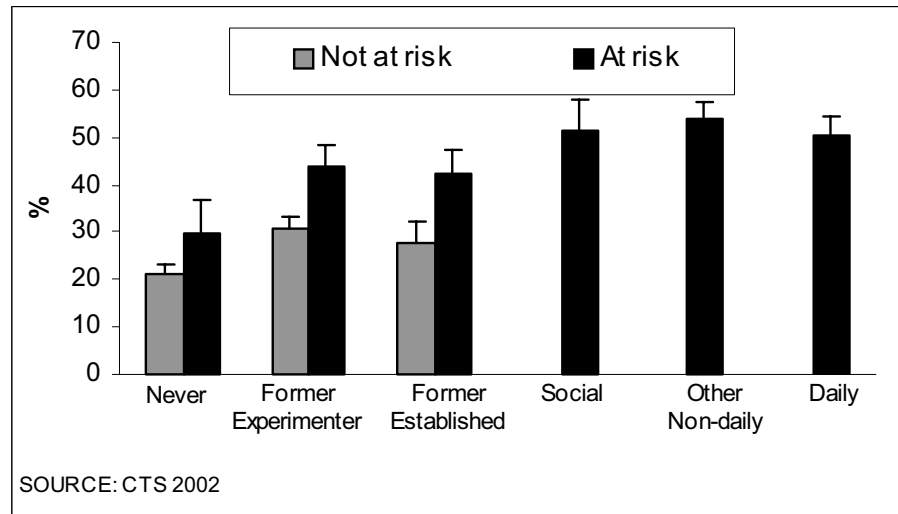
When examined by educational status, a somewhat lower percentage of smokers who had never attended college agreed that they enjoyed smoking while drinking ($70.8 \pm 3.4\%$), compared to college attenders ($79.3 \pm 3.3\%$).

In California, bars and clubs have been smoke-free by law since January 1998. Nevertheless, these venues attract young adults, both younger and older than the legal drinking age, and smokers can step outside when they want to smoke.

Attendance at Bars or Clubs

About a third of young adults go to bars or clubs at least sometimes.

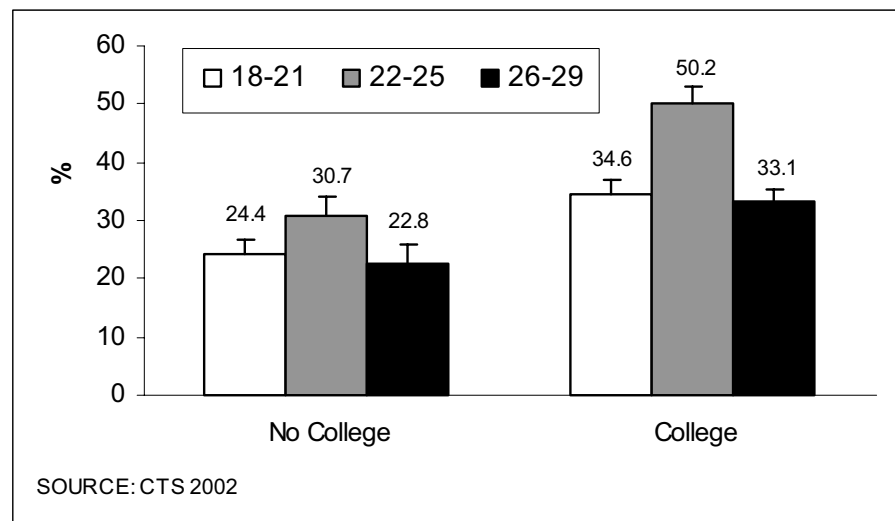
Overall, $33.8 \pm 1.2\%$ of the young adult population went to bars or clubs at least sometimes. **Figure 5.4** shows the percentages according to groups at risk and not at risk for future smoking (see Chapter 3). Former established smokers who quit within the last year, had had a recent lapse, or thought they might smoke again are contrasted to other former smokers, recent experimenters and susceptible former experimenters are contrasted with committed former experimenters.

Figure 5.4: Bar or Club Attendance by Young Adult Risk for Future Smoking

| | Never | Former Experimenter | Former Established | Social | Other Non-daily | Daily |
|-------------|-------|---------------------|--------------------|--------|-----------------|-------|
| Not at Risk | 21.2 | 30.9 | 27.6 | | | |
| At risk | 29.6 | 43.7 | 42.1 | 51.4 | 53.7 | 50.4 |

Bar or club attendance was much higher for all groups of young adult current smokers compared to former or never smokers. Among former established smokers who are vulnerable to relapse and among former experimenters who are susceptible to smoking again, bar or club attendance was higher than in the groups not at risk. Further, the rates are about the same for former experimenters and former established smokers. Even among the never smokers, attendance is higher among those susceptible to smoking compared to committed never smokers. These results demonstrate the link between smoking and drinking, and the potential of bars or clubs as a venue for promoting smoking and encouraging relapse among former experimenters and established smokers at risk to smoke again.

An additional analysis looked at bar or club attendance by college status and age. **Figure 5.5** indicates that this activity is much more prevalent among those who have attended college compared to those who have never attended in all age groups. Young adults 22-25 years who had attended college were more likely to be bar or club goers than any other group. Appendix Table A.5.2 presents bar or club attendance in demographic groups of the young adult population.

Figure 5.5: Bar or Club Attendance Reported as Often or Sometimes by College Status and Age

Drinking is an acknowledged problem among college students (Knight et al., 2002), and perhaps young adults who leave home to attend college enter into a drinking culture sooner. Younger non-college goers may still live at home and be under some degree of parental influence, although the higher smoking prevalence rates in this group indicates that such influence does not appear to limit smoking. Alternatively, perhaps more affluent college students are better able to afford to drink at trendy bars or clubs or find these venues more attractive, while those with no college tend to do their drinking in other settings.

4. Recall of Tobacco Industry Promotions in Clubs or Bars

The 2002 CTS survey asked young adults who frequented bars or clubs often or sometimes to indicate if they had ever experienced the following:

Seen people smoking indoors.

Seen people smoking directly outside the door or on patios.

Seen cigarette advertisements in bars or clubs on the walls or furniture.

Seen cigarette advertising on napkins, coasters, giveaways.

Seen cigarettes being given away by tobacco company representatives.

Have been to a club/bar event sponsored by a tobacco company.

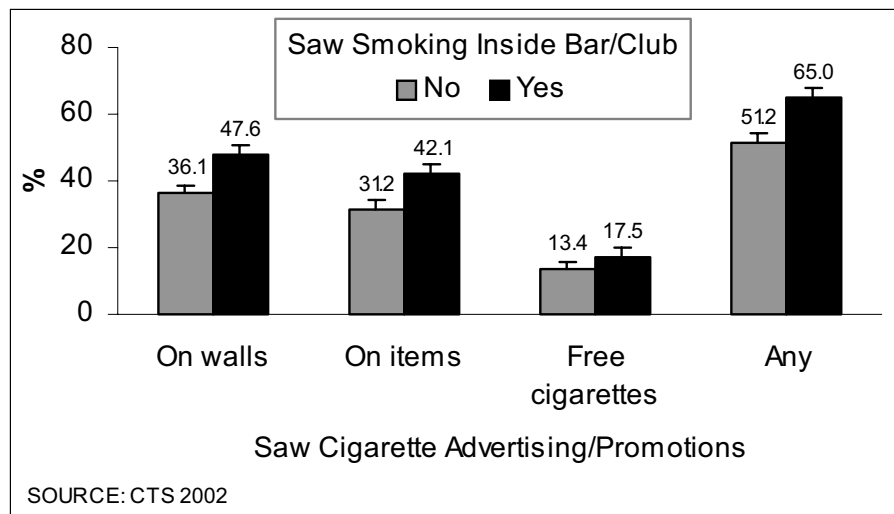
Nearly 60% of bar or club goers recalled seeing some form of cigarette advertising or promotions in these venues.

Nearly half ($49.1 \pm 1.9\%$) of bar or club goers reported seeing someone smoking inside a bar or club, and nearly all ($96.9 \pm 0.7\%$) recalled seeing someone smoking directly outside the door. Further, $41.7 \pm 2.1\%$ saw cigarette advertisements in bars or clubs on the walls or furniture, $36.5 \pm 2.0\%$ recalled seeing such ads on napkins, coasters, or giveaways, and $15.4 \pm 1.6\%$ reported seeing cigarettes being given away by tobacco company representatives. Nearly 60% ($57.9 \pm 2.2\%$) of young adults recalled seeing at least one of these three forms of cigarette advertising or promotions in bars or clubs. Finally, $11.3 \pm 1.3\%$ of young adults reported that they had attended a bar or club event sponsored by a tobacco company.

The actual percentage may be higher since this question was only asked of those who attend bars or clubs at least sometimes.

Figure 5.6 compares the percentages seeing each of the three forms of cigarette advertising or promotions (on walls or furniture, on napkins, coasters, other items, or cigarette giveaways), according to whether or not the bar or club goer reported seeing people smoking inside at bars or clubs. Those who reported seeing someone smoking inside a bar or club were more likely to report seeing one of these types of cigarette advertising or promotions.

Figure 5.6: Young Adult Recall of Seeing Cigarette Promotions by Report of Seeing Smoker Inside of Bar or Club

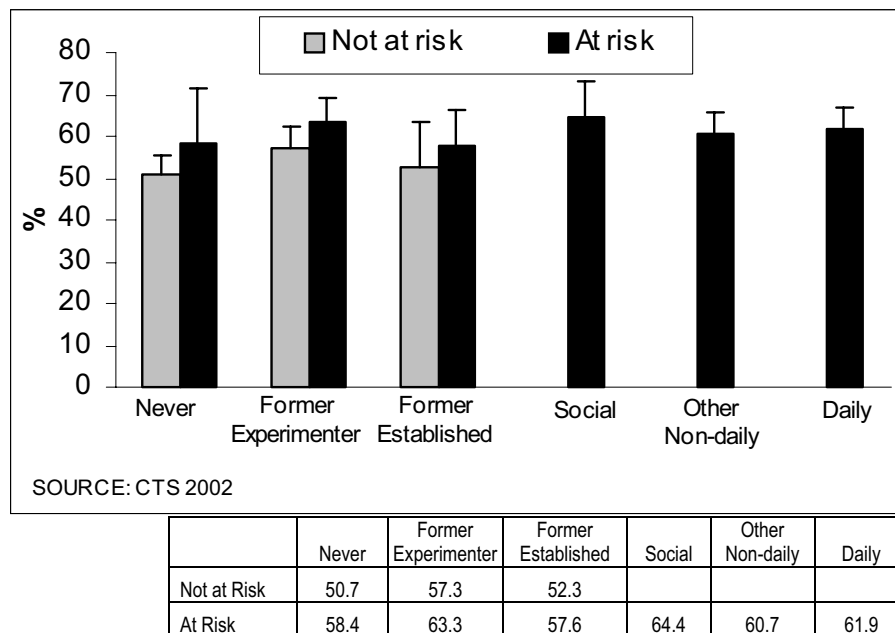


If respondents recalled seeing someone smoking inside a bar or club, $65.0\% \pm 2.6\%$ reported seeing at least one of the three types of promotions compared to $51.2 \pm 3.2\%$ for those who did not recall seeing someone smoke inside. While it is not possible to know whether the respondents saw the cigarette promotions in the same establishment where they saw people smoking, it is likely that people tend to frequent the same either smoker-friendly bars or clubs or smoke-free ones, and that their impressions reflect what they see

where they usually go. Nonetheless, these high rates of recall suggest substantial tobacco industry penetration of bars or clubs in an effort to reach the young-adult age group.

Figure 5.7 shows the percentages who recalled seeing at least one of the three types of advertising or promotions in a bar or club by risk of future smoking for never smokers and various groups of former and current smokers. It suggests that groups of young adults at risk for future smoking recalled seeing tobacco advertising or promotions slightly more than those not at risk. Vulnerable former experimenters were as likely to have recalled advertising or promotions as current smokers. However, it is possible that more at-risk individuals tend to patronize the more smoker-friendly establishments.

Figure 5.7: Young Adult Recall of at Least One Bar or Club Promotion by Risk for Future Smoking



5. Receptivity and Attitudes Toward Tobacco Companies and Promotions

The 2002 CTS asked all young adult smokers whether they agreed or disagreed with the following statements:

Cigarette companies lie.

Cigarette companies deny that cigarettes cause disease.

Cigarette companies deny that cigarettes are addictive.

I would like to see cigarette companies go out of business.

Tobacco company sponsorship of sports or cultural events should be banned.

Taking a stand against smoking is important to me.

I want to be involved in efforts to get rid of smoking.

Besides the above questions, receptivity to tobacco industry advertising and promotions (see Chapter 10) was examined by the groups of young adult respondents not vulnerable and vulnerable to future smoking. The responses to all the questions are presented in Appendix Table A.5.3

Table 5.2 reports summary measures of these results: (1) high receptivity to promotions as evidenced by owning or being willing to use a tobacco promotional item, $21.9 \pm 0.9\%$ of all young adults, (2) agreeing to two or more of the statements about the tobacco industry lying, $77.0 \pm 1.0\%$ of all respondents, (3) agreeing to both the statements about whether tobacco companies should go out of business or be banned from sponsoring sporting or cultural events, $54.6 \pm 1.3\%$ of all respondents, and (4) agreement to both the statements suggesting a willingness to take action against smoking, $55.1 \pm 1.2\%$ of all respondents.

| Table 5.2 Young Adults' Attitudes and Perceptions About the Tobacco Industry | | | | | | |
|---|---------------|-------------|------------------------------|-------------|-----------------------------|-------------|
| | Never Smokers | | Former Smokers/Experimenters | | Current Established Smokers | |
| | Committed | Susceptible | Not Vulnerable | Vulnerable | Non-Daily | Daily |
| Receptivity to tobacco ads and promotions | 11.1 (01.2) | 14.1 (04.3) | 18.8 (02.1) | 27.1 (02.2) | 36.5 (04.9) | 49.5 (03.0) |
| Tobacco industry lies | 79.7 (01.4) | 74.8 (04.8) | 77.1 (02.2) | 78.3 (02.5) | 70.2 (04.3) | 69.8 (03.3) |
| Anti-tobacco industry sentiment | 65.2 (02.0) | 57.4 (06.9) | 58.6 (02.8) | 49.9 (02.8) | 34.8 (04.2) | 31.2 (03.2) |
| Potential anti-tobacco activism | 67.1 (02.1) | 57.4 (06.8) | 60.1 (02.8) | 49.1 (02.5) | 34.9 (04.2) | 27.6 (03.2) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 2002

Ever cigarette users were more likely to have tobacco-industry friendly views than never smokers. For instance, in general, significantly lower percentages of current smokers and former smokers/experimenters had anti-tobacco industry sentiments or expressed a willingness to work against smoking than never smokers, and significantly higher

percentages of those with smoking experience were highly receptive to tobacco industry promotions. Very high percentages agreed that tobacco companies lie, regardless of smoking experience, although current established smokers were significantly less likely to agree compared to committed never smokers or former smokers.

Former smokers or experimenters who were vulnerable to smoking were more likely to show supportive views toward the tobacco-industry than those not vulnerable.

Groups more vulnerable to future smoking showed a pattern of more support toward the tobacco industry than the less vulnerable groups. In particular, significantly more vulnerable former smokers or experimenters were highly receptive to cigarette promotions (had or would be willing to use a tobacco promotional item), significantly fewer were willing to ban or restrict the tobacco industry, and significantly fewer were potential activists against smoking than the former experimenters committed not to smoke

again. This pattern was also present for the daily compared to the non-daily current smokers, with the daily smokers significantly more likely to be highly receptive to tobacco promotions and less likely (not significant) to take action against smoking.

6. Summary

About a third ($31.0 \pm 2.2\%$) of young adult smokers (including experimenters) smoked exclusively in social settings (they only smoked when others were smoking). Primarily these smokers were non-daily smokers, although non-daily smokers in general appear to smoke more in social settings than they do in other settings. Non-daily social smokers were less likely to view themselves as addicted to cigarettes, and more likely to believe that they could quit anytime they wanted than other non-daily smokers. They mostly smoked on weekends, and only consumed about half as many cigarettes per month as other non-daily smokers. Whether they can continue this pattern of smoking or whether it escalates needs to be determined from follow-up studies of such smokers. Smoking prevalence among young adults would be lower by a factor of 23.5% if the purely social established smokers ceased smoking.

High percentages of all groups of smokers enjoy smoking while drinking ($74.5 \pm 2.3\%$ overall), including young adults under the legal age for drinking. Further, a third ($33.8 \pm 1.2\%$) of young adult smokers indicated that they go to bars or clubs frequently or sometimes. All current smokers along with vulnerable former established smokers and susceptible former experimenters have much higher rates of attendance at bars or clubs than did committed never smokers and committed former experimenters. Bar or club attendance was higher among those with at least some college than among those with no college. Measures to control underage drinking may also be effective in discouraging smoking, so tobacco control advocates might partner with colleagues working to limit alcohol abuse among both college students and in the general population of young adults.

Young adult bar or club goers recalled seeing tobacco promotions in this setting at high rates ($57.9 \pm 2.2\%$ overall), and at even higher rates if they have ever seen someone smoking inside a bar or club ($65.0 \pm 2.6\%$). California mandated bars and clubs to be smoke-free beginning in 1998, but about half of bar or club goers ($49.1 \pm 1.9\%$) reported they had seen someone smoking inside. Young adult smokers or those vulnerable to smoking may tend to frequent more smoker-friendly bars or clubs, so stricter enforcement of the smoke-free law may help to counteract or even discourage tobacco industry advertising or promotions in these venues.

Over two-thirds ($77.0 \pm 1.0\%$) of young adults believed that tobacco companies lie, and this percentage did not vary much by smoking level or risk for future smoking. As expected, young adult smokers, particularly daily smokers, were more likely to have or be willing to use a tobacco promotional item, but former smokers/experimenters susceptible to smoking again were more likely to show this receptivity than those committed not to smoke again. Groups at risk for future smoking were less likely to think that the tobacco industry should be restricted and less inclined to take action against smoking. Continued media messages about the tobacco industry duplicity may help these young adults to resist industry influences to smoke.

Chapter

5

APPENDIX

Young Adults: Social Smoking and Tobacco Promotions at Bars or Clubs

1. Social Smokers Compared to Other Smokers in Demographic Subgroups

Table A.5.1 shows the demographic distribution for social smokers, other non-daily smokers, and daily smokers. Males were slightly more represented among the daily smokers than among the groups of non-daily smokers, but for the social and other non-daily smokers the gender distribution was very similar. There were no differences in the age distribution among the three groups. The racial/ethnic distribution was similar for social smokers and other non-daily smokers, with Hispanics more represented in the groups of non-daily smokers. The majority of Non-Hispanic Whites were daily smokers. Fewer social smokers had no college experience than other non-daily smokers, and reflecting smoking prevalence patterns in general, a high percentage of daily smokers had not been to college. Conversely, a

| Table A.5.1 Demographic Profile of Young Adult Non-Daily Smokers Who are Exclusively Social Smokers Compared to Other Non-daily Smokers | | | |
|--|------------------------|------------------------------------|-----------------------|
| | Social Smokers % | Other Non-Daily Smokers % | Daily Smokers % |
| Gender | | | |
| Male | 63.8 (∂4.4) | 64.6 (∂3.7) | 67.1 (∂2.9) |
| Female | 36.2 (∂4.4) | 35.4 (∂3.7) | 33.0 (∂2.9) |
| Age | | | |
| 18-21 | 37.1 (∂4.6) | 38.8 (∂4.2) | 37.0 (∂3.3) |
| 22-25 | 36.8 (∂4.2) | 36.0 (∂4.9) | 36.2 (∂3.2) |
| 26-29 | 26.1 (∂4.1) | 25.2 (∂3.7) | 26.8 (∂3.1) |
| Race/Ethnicity | | | |
| African American | 3.8 (∂1.8) | 4.4 (∂1.6) | 5.4 (∂1.7) |
| Asian/PI | 11.0 (∂3.2) | 9.5 (∂3.2) | 11.3 (∂2.1) |
| Hispanic | 45.7 (∂4.8) | 45.7 (∂4.0) | 24.9 (∂3.6) |
| Non-Hispanic White | 34.6 (∂3.8) | 37.4 (∂3.9) | 52.9 (∂3.1) |
| Education | | | |
| No college | 40.9 (∂5.7) | 49.6 (∂4.4) | 61.2 (∂3.2) |
| Some college, not current | 8.0 (∂2.9) | 9.1 (∂2.1) | 11.9 (∂2.4) |
| Part time student | 7.0 (∂2.6) | 6.9 (∂1.8) | 6.4 (∂1.5) |
| Full time student | 22.0 (∂4.6) | 17.7 (∂3.2) | 11.5 (∂2.5) |
| College graduate | 22.1 (∂3.9) | 16.8 (∂2.8) | 8.9 (∂1.8) |
| Marital Status | | | |
| Married | 14.7 (∂3.5) | 17.3 (∂3.5) | 17.7 (∂2.9) |
| Partnered | 11.7 (∂3.5) | 9.9 (∂2.5) | 14.7 (∂3.0) |
| Divorced/widowed/separated | 4.8 (∂2.2) | 4.0 (∂1.7) | 5.2 (∂1.5) |
| Single | 68.8 (∂5.3) | 68.9 (∂4.8) | 62.3 (∂3.6) |
| Employment Status | | | |
| Working | 67.2 (∂4.6) | 65.5 (∂4.5) | 69.0 (∂2.6) |
| Homemaker | 3.4 (∂2.3) | 3.9 (∂1.6) | 2.8 (∂1.2) |
| Student | 21.7 (∂4.5) | 19.3 (∂3.6) | 16.4 (∂2.3) |
| Unemployed | 7.0 (∂2.3) | 10.2 (∂2.5) | 11.5 (∂2.2) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 2002

significantly higher percentage of college graduates were found among social smokers compared to other non-daily smokers and daily smokers. Full time students were more represented among social smokers than other non-daily smokers and daily smokers as well, but the difference between social and other non-daily smokers was not significant.

2. Bar or Club Attendance in Demographic Subgroups

Table A.5.2 shows the percentages of young adults in different demographic groups who go to bars or clubs frequently or sometimes. Males were significantly more likely to be bar or club attenders than females, and as depicted in Figure 5.5, young adults 22 to 25 years of age were significantly more likely to go to bars or clubs than either the younger or older age groups. Non-Hispanic Whites were significantly more likely and Hispanics were significantly less likely to go to bars or clubs at least sometimes compared to each other. Young adults who have never been to college were significantly less likely to go to bars or clubs, and college graduates were significantly more likely to engage in this activity than other groups. Single and divorced individuals went to bars or clubs at significantly higher rates than married individuals, and married people were significantly less likely than partnered people to frequent bars or clubs. Few homemakers went out to bars or clubs, and those in the workforce were significantly more likely to go out to bars or clubs than either students or the unemployed.

| Table A.5.2 | |
|---|-------------|
| Young Adults Who Go to Bars or Clubs at Least Sometimes in Demographic Subgroups | |
| | % |
| Overall | 33.8 (±1.2) |
| Gender | |
| Male | 38.7 (±1.9) |
| Female | 28.3 (±1.6) |
| Age | |
| 18-21 | 28.7 (±1.8) |
| 22-25 | 42.3 (±2.4) |
| 26-29 | 31.6 (±2.1) |
| Race/Ethnicity | |
| African American | 35.2 (±4.6) |
| Asian/PI | 34.6 (±3.7) |
| Hispanic | 29.0 (±1.7) |
| Non-Hispanic White | 38.7 (±2.1) |
| Education | |
| No college | 25.7 (±1.6) |
| Some college, not current | 36.2 (±3.8) |
| Part time student | 41.9 (±4.6) |
| Full time student | 38.9 (±2.5) |
| College graduate | 46.2 (±2.6) |
| Marital Status | |
| Married | 18.8 (±1.7) |
| Partnered | 28.9 (±2.9) |
| Divorced/widowed/separated | 36.1 (±6.1) |
| Single | 40.7 (±1.6) |
| Employment Status | |
| Working | 38.4 (±1.6) |
| Homemaker | 9.4 (±2.3) |
| Student | 33.2 (±2.0) |
| Unemployed | 28.6 (±3.7) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 2002

3. Receptivity and Attitudes Toward Tobacco Industry

Table A.5.3 shows the results for the individual survey items combined for the analyses presented in Section 5 of the main part of the chapter. The patterns for the individual items show similar response patterns according to smoking history and vulnerability exhibited by the indices created from them that are described in the main body of the chapter.

| Table A.5.3 Responses to Individual Items About Tobacco Industry by Vulnerability to Smoking | | | | | | | |
|---|-------------|---------------|-------------|----------------------------------|-------------|-----------------|-------------|
| | Overall | Never Smokers | | Former Smokers/ Experimenters | | Current Smokers | |
| | | Committed | Susceptible | Not Vulnerable | Vulnerable | Non-Daily | Daily |
| | | % | % | % | % | % | % |
| Receptivity to advertising and promotions | | | | | | | |
| Have favorite ad | 43.9 (∂1.2) | 29.1 (∂1.3) | 36.8 (∂7.0) | 43.4 (∂2.9) | 54.9 (∂2.6) | 61.4 (∂4.2) | 68.9 (∂3.6) |
| Have promo item | 7.8 (∂0.7) | 3.8 (∂0.7) | 5.5 (∂2.5) | 5.9 (∂1.3) | 7.8 (∂1.2) | 13.7 (∂4.3) | 21.9 (∂3.0) |
| Would use promo item | 18.3 (∂0.9) | 8.4 (∂1.0) | 11.0 (∂4.1) | 15.5 (∂2.1) | 23.5 (∂2.0) | 29.9 (∂4.6) | 43.4 (∂2.9) |
| Lying by tobacco industry | | | | | | | |
| Cigarette companies lie | 84.4 (∂0.9) | 85.6 (∂1.5) | 82.6 (∂4.7) | 85.1 (∂1.9) | 85.9 (∂2.1) | 79.0 (∂3.6) | 80.5 (∂2.7) |
| Cigarette companies deny that cigarettes cause disease | 70.2 (∂1.1) | 73.5 (∂1.7) | 70.7 (∂5.3) | 70.7 (∂2.5) | 68.5 (∂2.6) | 66.6 (∂4.4) | 62.6 (∂3.4) |
| Cigarette companies deny that cigarettes are addictive | 75.1 (∂1.0) | 77.5 (∂1.4) | 74.5 (∂5.0) | 75.2 (∂2.3) | 76.8 (∂2.4) | 69.1 (∂4.0) | 67.8 (∂3.2) |
| Anti-industry sentiment | | | | | | | |
| I would like to see cigarette companies go out of business | 71.6 (∂1.1) | 82.4 (∂1.5) | 75.8 (∂5.1) | 76.5 (∂2.5) | 66.3 (∂2.4) | 52.1 (∂4.1) | 46.3 (∂3.9) |
| Tobacco companies should not be allowed to sponsor events | 64.6 (∂1.3) | 72.0 (∂1.7) | 68.4 (∂6.3) | 66.9 (∂2.6) | 62.4 (∂2.8) | 50.9 (∂4.2) | 46.2 (∂3.5) |
| Potential anti-tobacco activism | | | | | | | |
| Taking a stand against smoking is important to me | 75.9 (∂1.2) | 87.1 (∂1.4) | 81.4 (∂4.3) | 82.0 (∂2.5) | 70.8 (∂2.2) | 53.8 (∂4.8) | 48.4 (∂4.5) |
| I want to be involved in efforts to get rid of smoking | 59.2 (∂1.1) | 70.9 (∂2.0) | 62.7 (∂6.7) | 63.4 (∂2.6) | 52.8 (∂2.4) | 40.3 (∂4.6) | 33.9 (∂3.4) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 2002

Glossary

Young Adults (see also Table 3.1)

Current experimenter – an *experimenter* who has had a cigarette in the past 30 days or admits to smoking once in a while.

Current smoker – has smoked at least 100 cigarettes in his or her lifetime and smokes now (old question) or now either every day or some days (new question) at the time of the survey.

Daily smoker – a current smoker who has smoked on every day of the past month (old question sequence) or who now smokes every day (new question).

Established smoker – has smoked at least 100 cigarettes in his or her lifetime.

Experimenter - has smoked a cigarette, but has not smoked at least 100 cigarettes in his or her lifetime.

Light daily smoker – a *current smoker* who consumes <15 cigarettes/day.

Moderate-to-heavy daily smoker – a *current smoker* who consumes ≥ 15 cigarettes/day.

Never-daily smoker – a *current smoker* who has never smoked daily for a period of at least six months.

Non-daily smoker – a *current smoker* who smoked on at least 1 day but less than 30 days in the past month (old question sequence) or who says he or she now smokes some days (new question).

Once-daily non-daily smoker – a *current non-daily smoker* who has in the past smoked daily for a period of at least 6 months.

Social smoker – a *current experimenter* or *non-daily smoker* who smokes only when others are smoking.

References

- Gilpin EA, Cavin SW, Pierce JP. Adult smokers who do not smoke daily. *Addiction*. **1997**;92:473-480.
- Katz SK, Lavack AM. Tobacco related bar promotions: insights from tobacco industry documents. *Tob Control*. **2002**;11(Suppl. I):i92-i101.
- Knight JR, Wechsler H, Kuo M, Seibring M, Weitzman ER, Schuckit MA. Alcohol abuse and dependence among U.S. college students. *J Stud Alcohol*. **2002**;63:263-270.
- Ling PM, Glantz SA. Why and how the tobacco industry sells cigarettes to young adults: evidence from industry documents. *Am J Public Health*. **2002**;92:908-916.
- Moran S, Rigotti NA, Wechsler H. Social smoking by U.S. College Students. Abstract PA9-7, presented at the Society for Research on Nicotine and Tobacco, New Orleans, February 19-22, **2003**.
- Rollins S, Schumacher JRM, Ling P. Exploring the phenomenon of social smoking –Why do so many young adults socially smoke? Abstract MEDI-161 presented at the 2002 National Conference on Tobacco or Health, San Francisco, November 19-21, **2002**.
- Sepe E, Glantz SA. Bar and club tobacco promotions in the alternative press: targeting young adults. *Am J Public Health*. **2002**;92:75-78.
- Sepe E, Ling PM, Glantz SA. Smooth moves: Tobacco bars and nightclub promotions target young adults. *Am J Public Health*. **2002**;92:414-419.

TOBACCO CONTROL SUCCESSES IN CALIFORNIA:
A FOCUS ON YOUNG PEOPLE

Chapter 6

Protection of Nonsmokers from Secondhand Smoke

| | |
|--|-------------|
| KEY FINDINGS | 6-2 |
| Introduction | 6-3 |
| 1. Smoke-free Workplaces | 6-4 |
| Report of Smoke-free Workplaces | 6-4 |
| Exposure of Nonsmokers to Secondhand Tobacco Smoke at Work | 6-5 |
| 2. Exposure to Secondhand Smoke at Home | 6-9 |
| Home Smoking Restrictions | 6-9 |
| Protection of Children and Youth from Secondhand Tobacco Smoke in the Home | 6-11 |
| How Does California Compare to the Rest of the US in Protecting Youth? | 6-12 |
| 3. Exposure to Secondhand Tobacco Smoke in Places Other Than Work or Home | 6-13 |
| 4. Beliefs About Secondhand Smoke | 6-15 |
| Primarily a Health Hazard or an Annoyance? | 6-15 |
| Beliefs About Harmfulness of Secondhand Smoke | 6-16 |
| Nonsmokers' Right to Breathe Clean Air | 6-17 |
| Avoidance of Secondhand Smoke | 6-17 |
| 5. Support for Smoking Restrictions | 6-19 |
| California vs. Rest of US | 6-19 |
| Californians' Opinions About Smoking Bans in Places Where Smoking is Presently Allowed | 6-22 |
| 6. Summary | 6-24 |
| APPENDIX..... | 6-26 |
| 1. Exposure to Secondhand Smoke in the Workplace..... | 6-26 |
| 2. Exposure to Secondhand Smoke in the Home..... | 6-31 |
| 3. Nonsmoker Responses when Exposed to Secondhand Smoke..... | 6-32 |
| 4. Attitudes About Where Smoking Should Not be Allowed | 6-33 |
| GLOSSARY | 6-36 |
| REFERENCES | 6-37 |

Chapter

6

KEY FINDINGS

Protection of Nonsmokers From Secondhand Smoke

- 1) Nonsmoker exposure to secondhand smoke in the workplace has again declined.** In 2002, only 11.9% of indoor workers reported that they were exposed to secondhand smoke in their work area in the last 2 weeks, a decline by a factor of 59.0% from the level reported in 1990 (29.0%).
- 2) The majority of nonsmokers exposed to secondhand smoke in the workplace were exposed on a daily basis** (64.3%), while 14.4% said it was a rare occurrence. Although the rate of daily exposure among office workers was relatively low (6.0% in 2002), the large number of office workers makes this the indoor workplace responsible for more nonsmokers exposed on a daily basis any other type of workplace (296,601 California nonsmokers out of 818,587 exposed daily).
- 3) Over three fourths (76.9%) of California homes were smoke0free in 2002,** a slightly but significant increase from 1999 (72.8%), and an increase by a factor of 51.1% over the 1993 rate. In 2002, nearly half of smokers lived in smoke-free homes (49.0%), not a significant increase from 1999 (46.6%).
- 4) Over 90% of California's children and adolescents were protected from secondhand smoke in the home.** In 2002, 90.2% of California children and adolescents (0 to 17 years of age) were protected from secondhand smoke at home, slightly but significantly higher than in 1996 (86.3%). African American children and adolescents remained the least protected (85.7%), but this group has shown gains similar to other racial/ethnic groups.
- 5) Regardless of smoking status, most Californians believed that nonsmokers should not have to breathe secondhand smoke:** In 2002, 91.6% of never smokers, 89.2% of former smokers, and 89.5% of current smokers held this belief.
- 6) Californians increased their support for smoke-free indoor venues at a faster rate compared to people in the rest of the US between 1992-93 and 1998-99,** even though they started at higher levels in 1992. California smokers showed particularly marked increases in support. The level of support for smoke-free environments is likely an indicator of anti-smoking social norms.
- 7) In 2002, Californians showed high levels of support for additional smoke-free venues,** including children's play yards and sports fields (90.5%), common areas of hotels/motels (88.8%), and the common areas of apartment buildings/condos (87.1%).

Protection of Nonsmokers from Secondhand Smoke

Introduction

California has been the vanguard for the nation with respect to protection of nonsmokers from secondhand smoke. Only very recently have other states begun to follow California's lead in banning smoking in indoor workplaces, including restaurants and bars. The impetus for smoke-free environments came from the well-documented health hazards of secondhand smoke (US EPA, 1992; CalEPA, 1997; NCI, 1999). As the benefits of smoke-free environments are realized in more states with smoke-free laws, public demand for increased protection from secondhand smoke should continue to grow.

The implementation of the California Assembly Bill 13 (AB-13)¹ in 1995, banning smoking in indoor workplaces, was a turning point in California. While a great deal of effort by local and voluntary agencies was required to pass this law, its effect likely went beyond the protection of nonsmokers in the workplace. As seen in Chapter 8, it may have motivated smokers to try to quit and to reduce cigarette consumption. Together with the California Tobacco Control Program anti-tobacco media campaign, which educated the public about the health dangers of secondhand smoke, the smoke-free workplace law may have encouraged people to prohibit smoking in their homes. Further, the emphasis on protecting nonsmokers from secondhand smoke likely contributed to increasing population anti-tobacco social norms in general.

Section 1 of this chapter shows the increase in the percentage of indoor California workers with smoke-free workplaces, as well as the decrease in exposure to secondhand smoke in the workplace. It also examines settings in which a large number of California nonsmokers who are indoor workers are still being exposed. Section 2 examines home smoking policies, addressing such questions as who is implementing them and who is benefiting. Section 3 explores the extent of secondhand smoke exposure across the population in places other than home or work. Section 4 looks at population beliefs regarding secondhand smoke and steps nonsmokers take to avoid it. Section 5 compares support for smoking bans in California to the rest of the US and support in California for new bans in settings not currently mandated to be smoke-free. Section 6 summarizes the chapter results, highlighting progress as well as areas where further policy initiatives may be needed.

¹ California Labor Code Section 6404.5

1. Smoke-free Workplaces

Culminating in the passage of AB-13 in 1994, volunteers throughout the state worked diligently to pass local ordinances protecting nonsmokers in public places and workplaces. AB-13, which took effect in 1995, prohibits smoking in all enclosed places of employment, and supersedes many of the local ordinances enacted earlier. It does not preclude local jurisdictions from enacting stronger ordinances (MacDonald & Glantz, 1997). As enacted initially, AB-13 covered all workplaces except for bars, taverns and gaming clubs, and it was expanded to cover these venues as of January 1, 1998.

Report of Smoke-free Workplaces

In 1990 and 1992, before AB-13, indoor workers who responded to the CTS were asked the following:

Does your place of work have an official policy that restricts smoking in any way?

If there was a policy restricting smoking, respondents to all surveys were then asked the following questions:

Which of these best describes your place of work's smoking policy for indoor public or common areas, such as lobbies, rest rooms, and lunch rooms?

Which of these best describes your place of work's smoking policy for work areas?

The response choices for the latter two questions were as follows: not allowed in any, allowed in some, or allowed in all. Workers who answered “not allowed in any” to both questions were considered to have smoke-free workplaces.

The 1993 CTS may not have correctly identified whether an indoor worker had a smoke-free workplace because of ambiguous response choices, so data from this survey on report of a smoke-free workplace are not included in the analyses for this report. Because AB-13 mandated nearly all workplaces to be smoke-free in 1995, the questions asked in the 1996 and 1999 CTS were different from prior years. These CTS established that a respondent was an indoor worker with one question, rather than a series of questions:

Do you currently work for money in an indoor setting, such as an office, plant, or store, outside of your home?

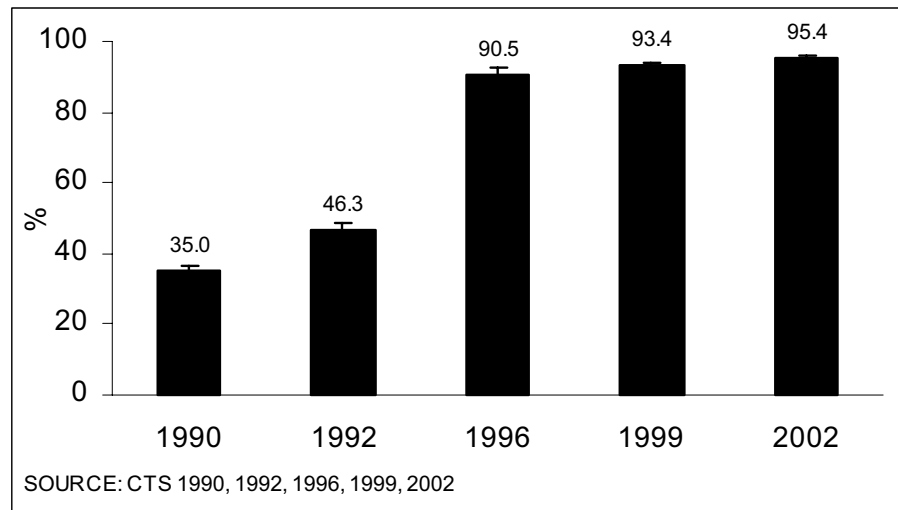
Respondents were no longer asked whether their workplace had a policy, but rather whether it was smoke-free:

Is your place of work completely smoke-free indoors?

In 2002, less than 5% of indoor workers in California reported that their workplaces were not smoke-free.

Figure 6.1 shows the percentage of indoor workers who reported that their workplace was smoke-free. The percentage of indoor workers who enjoy a smoke-free workplace has increased significantly by a factor of 173% between 1990 and 2002. Most of the increase took place between the 1992 and 1996 surveys, when AB-13 took effect, but the number of indoor workers reporting a smoke-free workplace increased significantly between 1996 and 2002. Appendix Table A.6.1 shows the detailed breakout of report of smoke-free workplaces in 2002 by demographics.

Figure 6.1: Indoor Workers Reporting Smoke-free Workplaces



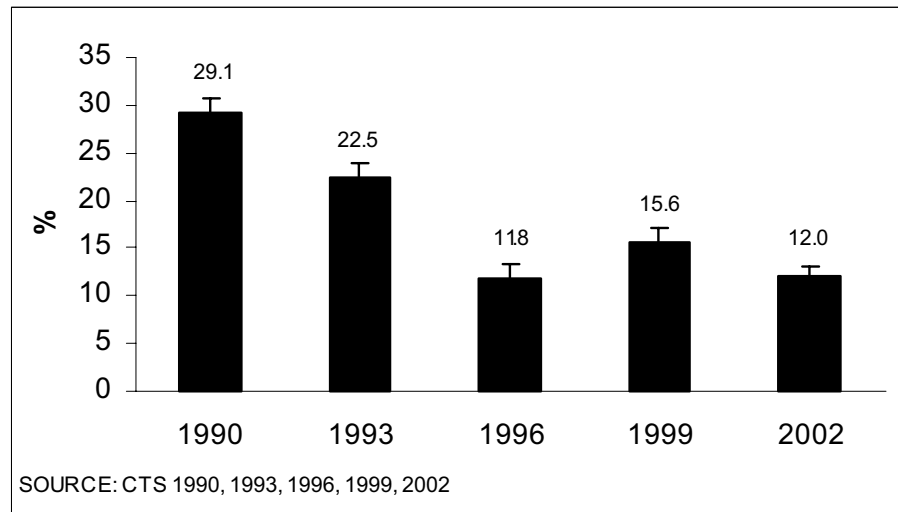
Exposure of Nonsmokers to Secondhand Tobacco Smoke at Work

Because of AB-13, all indoor workplaces should by law be smoke-free. In order to accurately assess workplace protection from secondhand tobacco smoke, each CTS asked all nonsmokers who worked indoors:

During the past 2 weeks, has anyone smoked in the area in which you work?

In 2002, the percentage of nonsmoking indoor workers exposed to secondhand smoke at work was 12.0%, less than half the rate observed in 1990.

Figure 6.2 shows the percentage of nonsmoking indoor workers that were exposed recently to secondhand smoke in their work area for each survey year. Because of the increase in local ordinances, workers reporting exposure between 1990 and 1993 declined significantly. Following the passage of AB-13, exposure rates were cut in half by 1996. However, secondhand smoke exposure increased again in 1999, but by 2002 it was back to the level observed in 1996. Over the entire period, exposure to secondhand smoke declined by a factor of 58.8%.

Figure 6.2: Exposure of Nonsmoking Indoor Workers to Secondhand Smoke

Because of the increase in exposure seen in 1999, the 2002 CTS included a new question to assess the extent of exposure. If someone said that they had been exposed in the past 2 weeks, they were asked the following questions:

About how often does smoking occur in your work area?

Would you say... daily, several times a week, at least monthly, or rarely.

In 2002, of those who reported exposure, $64.3 \pm 4.3\%$ reported that it occurred daily, $13.1 \pm 3.3\%$ reported that it occurred weekly, $7.0 \pm 2.7\%$ reported that it occurred monthly, and $14.4 \pm 2.8\%$ said that it occurred rarely. Thus, exposure in the past 2 weeks was not an isolated incident, and indicates substantial non-compliance with AB-13 in some workplaces. Altogether, the percentage reporting daily exposure translates into 818,587 nonsmoking indoor workers.

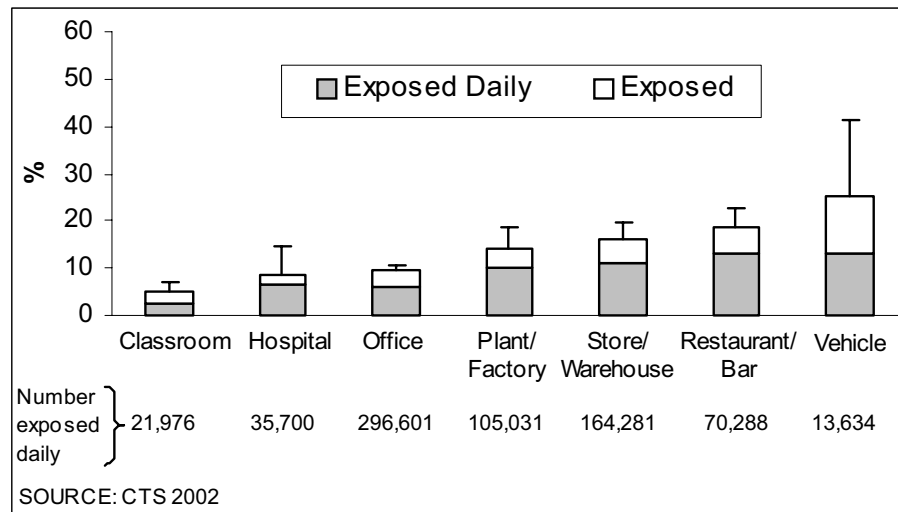
Some types of workplaces may be more prone to lax enforcement of the smoke-free workplace law. To gain some understanding about the workplace settings in which exposure to secondhand smoke was most likely to occur, all indoor workers were asked about their type of workplace:

What best describes where you currently work outside your home for money?

The response categories were as shown in **Figure 6.3**, and the darker portion of each bar shows the proportion of those exposed who were exposed on a daily basis for each

workplace type. The numbers below the type of workplace descriptor show how many Californians were exposed on a daily basis to secondhand smoke in their work area.

Figure 6.3: Exposure of Nonsmoking Indoor Workers by Type of Workplace in 2002



| | Exposed Daily | Exposed |
|------------------|---------------|---------|
| Classroom | 2.3 | 4.8 |
| Hospital | 6.7 | 8.7 |
| Office | 6.0 | 9.6 |
| Plant/ factory | 10.3 | 13.9 |
| Store/ warehouse | 11.2 | 16.3 |
| Restaurant/ bar | 13.0 | 18.7 |
| Vehicle | 13.0 | 25.2 |

Exposure to secondhand smoke was least likely to occur among workers in classrooms, and proportionately, daily exposure was less in this setting as well. While under 10% of workers in hospitals and offices reported exposure in their work area, a slightly higher percentage of hospital compared to office workers were exposed on a daily basis. However, because many more Californians work in offices than in any other workplace type, the number of nonsmokers exposed on a daily basis is high. Thus, even though exposure to secondhand smoke is more common in plants/factories, stores/warehouses, restaurant/bars, more indoor workers were exposed in offices. Whether or not vehicles are considered an indoor workplace needs clarification, but in any case, this setting accounts for only a small number of workers exposed to secondhand smoke on a daily basis.

The prevalence of smoking among workers in each of the workplace venues appeared to be related to likelihood of nonsmoker exposure to secondhand smoke. Among people working in a classroom setting, only 7.6 \pm 1.1% were current smokers, but prevalence was much higher among workers in stores/warehouses (19.4 \pm 2.1%) and restaurants/bars (21.7 \pm 3.7%). Smoking prevalence among hospital workers (15.2 \pm 3.4%), office workers (13.1 \pm 0.8%) and plant/factory workers (16.8 \pm 2.7%) was in between.

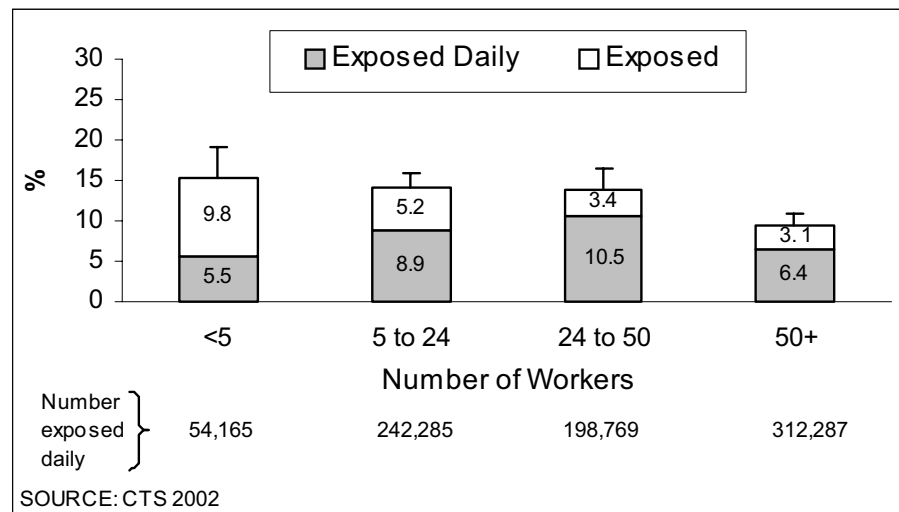
Exposure to secondhand smoke on a daily basis in the work area might also be related to workplace size. In 2002, the CTS asked indoor workers the following:

What is the total number of employees in the building where you work?

Is it...less than 5, at least 5 but less than 25, between 25 and 50, or more than 50?

Figure 6.4 shows the level of work area exposure for indoor workers in these various sized workplaces. Again, the darker portion of the bar indicates exposure on a daily basis, and the numbers at the bottom of the graph indicate the total number of workers exposed on a daily basis in each size workplace. Very small workplaces showed proportionately less daily exposure than larger workplaces, and since these small workplaces are not prevalent, they account for a relatively small number of persons exposed. While overall exposure in the largest workplaces is less, the proportion of those exposed on a daily basis is high, leading to exposure for a high number of nonsmokers.

Figure 6.4: Exposure of Nonsmoking Indoor Workers by Size of Workplace



Appendix Tables A.6.2 and A.6.3 show the demographic subgroups of workers exposed to secondhand smoke in their work areas in the past 2 weeks and on a daily basis in 2002. Hispanic indoor workers appeared more likely to be exposed than other racial/ethnic groups, and college graduates were less likely to be exposed.

California has made significant progress in protecting nonsmokers from the hazards of secondhand smoke in the workplace. While gains were achieved in the early 1990s through mass media and local community activity, the passage of a statewide law (AB-13) was associated with the largest change. However, compliance may have relaxed somewhat in recent years. Since exposure to secondhand smoke in the workplace appears related to smoking prevalence among the workers, it is likely that much of the frequent exposure is from co-workers rather than from visitors to the workplace.

2. Exposure to Secondhand Smoke at Home

It is likely that the emphasis placed on the dangers of secondhand smoke by the California Tobacco Control Program media campaign (see Chapter 10), led to the adoption of home smoking restrictions. While home smoking restrictions play a vital role in protecting nonsmokers, particularly children, from secondhand smoke, there is considerable evidence that they have a much wider effect. Smoke-free homes may decrease cigarette consumption, promote quitting, and help prevent relapse in former smokers (Gilpin et al., 1999; Farkas et al., 1999). In addition, recent data also suggest that smoke-free homes are associated with lower smoking initiation rates in adolescents, even in homes where parents smoke (Farkas et al., 2000).

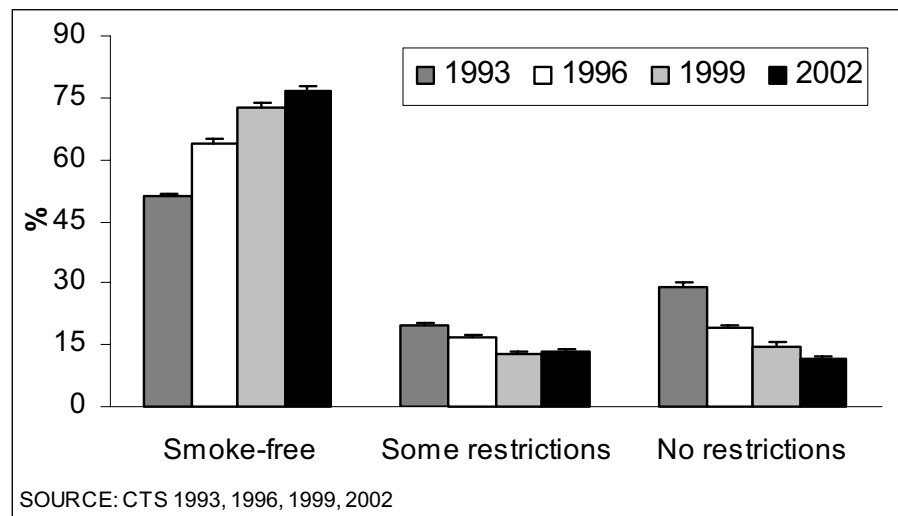
Home Smoking Restrictions

Respondents to the CTS after 1990 were asked to describe their home rules on smoking by choosing from the following options:

- (1) Smoke-free - Smoking is completely banned in the home.
- (2) Some Restrictions - Smoking is permitted in certain rooms or at certain times.
- (3) Unrestricted - Smoking is allowed anywhere in the home.

Figure 6.5 shows the percentage of the population living under the different levels of smoking restrictions in each survey year.

Figure 6.5: Home Smoking Restrictions Among All Californians (Smokers and Nonsmokers)



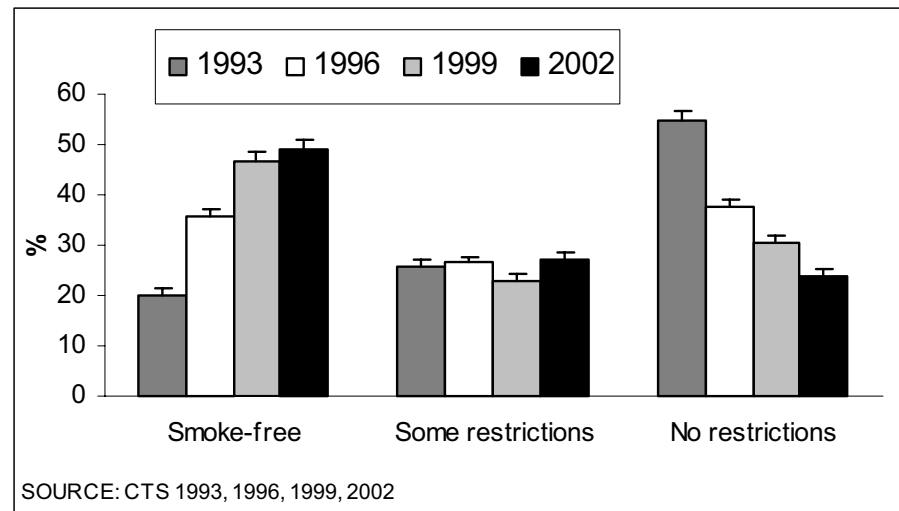
| | 1993 | 1996 | 1999 | 2002 |
|-------------------|------|------|------|------|
| Smoke-free | 50.9 | 63.7 | 72.8 | 76.9 |
| Some restrictions | 20.0 | 16.6 | 12.5 | 13.4 |
| No restrictions | 29.1 | 18.9 | 14.7 | 11.6 |

The percentage of smoke-free homes continued to increase between 1993 and 2002, and a smaller but significant increase occurred between 1999 and 2002. In 2002, over three-quarters of California homes were reported to be smoke-free, representing an increase by a factor of 51.1% since 1993. Table A.6.4 shows report of home smoking restrictions by demographics.

In 2002, 49.0% of smokers lived in smoke-free homes, not significantly increased from 1999.

Since many homes do not have resident smokers, it is important to examine these trends as reported by smokers (see **Figure 6.6**). As for all households, the percentage of smokers reporting smoke-free households increased markedly between 1993 and 1996, and again between 1996 and 1999. However, while there was a slight increase in the percentage of smokers reporting smoke-free homes in 2002, it was not significant.

Figure 6.6: Home Smoking Restrictions Reported by California Smokers



| | 1993 | 1996 | 1999 | 2002 |
|-------------------|------|------|------|------|
| Smoke-free | 19.8 | 35.9 | 46.6 | 49.0 |
| Some restrictions | 25.6 | 26.5 | 22.8 | 27.3 |
| No restrictions | 54.6 | 37.6 | 30.6 | 23.7 |

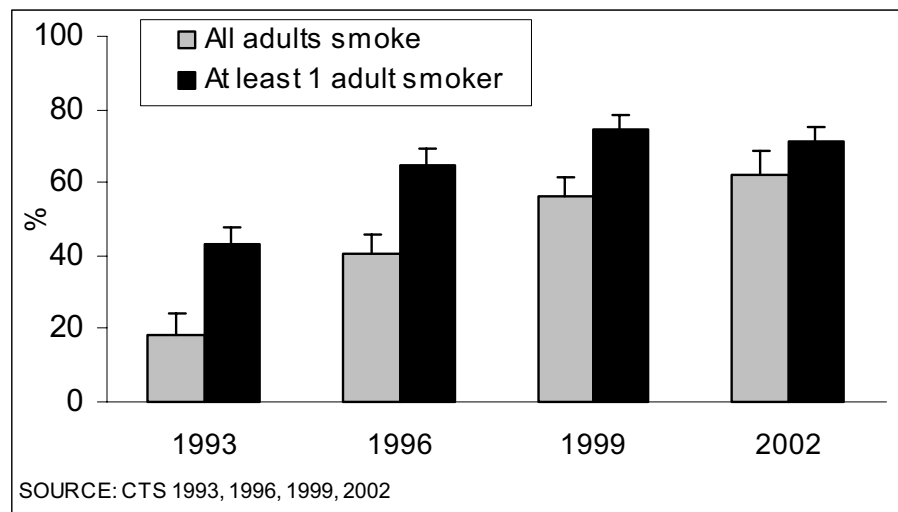
Corresponding to the rise in smoke-free homes with adult smokers, the percentage of homes with no restrictions decreased significantly between 1993 and 2002, with the decline between 1999 and 2002 also significant. These data document that the California Tobacco Control Program has been successful in changing the social norms about the appropriateness of smokers exposing others to secondhand smoke in their homes.

Protection of Children and Youth from Secondhand Tobacco Smoke in the Home

The California Environmental Protection Agency has clearly documented the risks of secondhand smoke to children (CalEPA, 1997). Children and adolescents are increasingly protected from secondhand tobacco smoke in the home either because they do not live with a smoker, *or* they live in a smoke-free home. Overall, $92.9 \pm 0.9\%$ of children aged 5 years or under were protected from ETS in the home in 2002.

Figure 6.7 shows that in homes with these young children where all adults smoke, the percentage with smoke-free homes rose from $18.0 \pm 6.5\%$ in 1993 to $62.0 \pm 6.6\%$ in 2002, a factor increase of 244%. In homes with young children where at least one adult smoked and at least one did not, $43.2 \pm 4.5\%$ were smoke-free in 1993, and this figure jumped to $74.5 \pm 5.4\%$ by 1999, and decreased slightly but not significantly to $71.0 \pm 3.9\%$ in 2002, a factor increase since 1993 of 64.5%.

Figure 6.7: Protection of Young Children (0-5 Years) In Households With Smokers



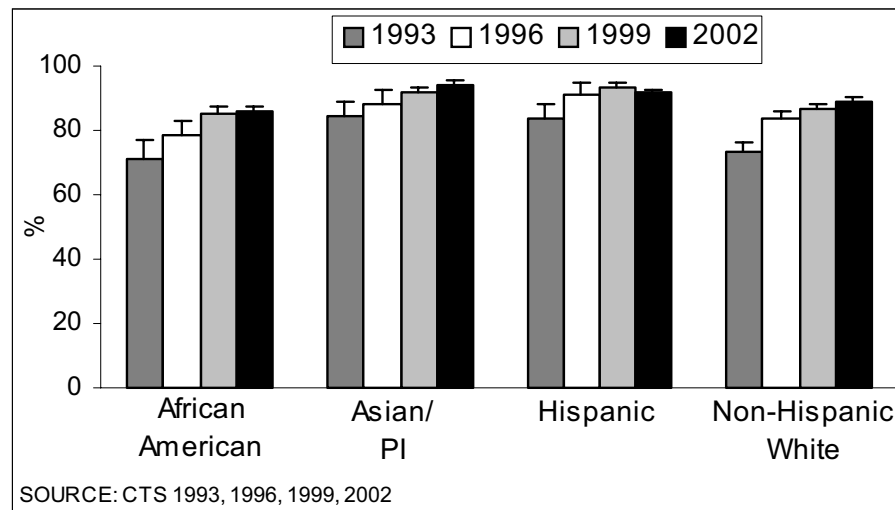
| | 1993 | 1996 | 1999 | 2002 |
|-------------------------|------|------|------|------|
| All adults smoke | 18.0 | 40.3 | 56.0 | 62.0 |
| At least 1 adult smoker | 43.2 | 64.7 | 74.5 | 71.0 |

In 2002, over 90% of children under 18 years were protected from secondhand smoke at home.

In 2002, $90.2 \pm 0.9\%$ of California children and adolescents (0 to 17 years of age) were protected from secondhand smoke at home, slightly but significantly higher than in 1996 ($86.3 \pm 0.9\%$) and considerably increased from 1993 ($77.1 \pm 1.4\%$).

Figure 6.8 shows that the protection of children and adolescents has increased in all racial/ethnic groups, although the changes were smaller between 1999 and 2002, with a small, non-significant decline for Hispanics, who were already at very high levels in 1999. While the African Americans show lower rates of protection than other racial/ethnic groups, the gap has decreased somewhat.

Figure 6.8: Protection from Secondhand Smoke at Home for Children/Adolescents by Race/Ethnicity



| | 1993 | 1996 | 1999 | 2002 |
|--------------------|------|------|------|------|
| African American | 71.3 | 78.4 | 85.0 | 85.7 |
| Asian/PI | 84.5 | 88.3 | 92.2 | 94.3 |
| Hispanic | 83.5 | 91.1 | 93.3 | 91.5 |
| Non-Hispanic White | 73.6 | 83.6 | 86.6 | 89.1 |

How Does California Compare to the Rest of the US in Protecting Youth?

The National Youth Tobacco Survey (NYTS)² asks middle and high school students the following questions about exposure to secondhand smoke:

In the past 7 days, on how many days were you in the same room as someone who was smoking cigarettes?

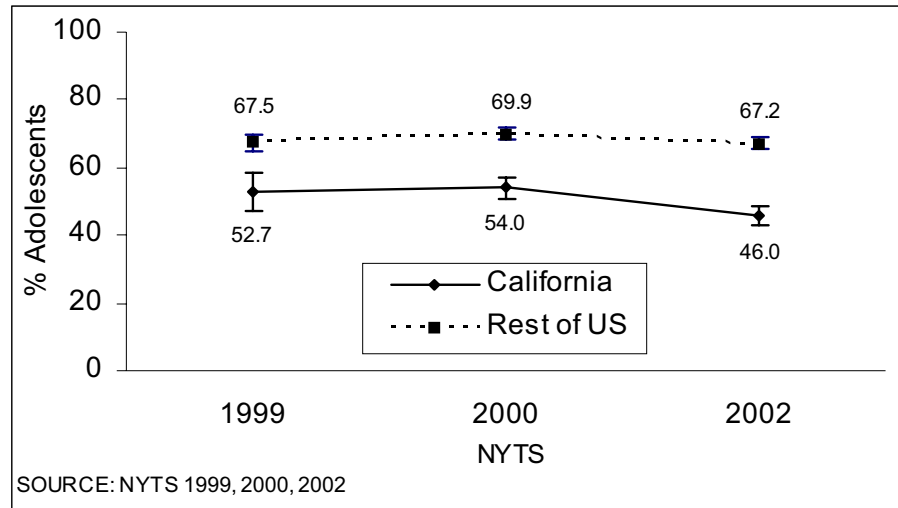
In the past 7 days, on how many days did you ride in a car with someone who was smoking cigarettes?

Figure 6.9 compares the data from schools in California to schools elsewhere in the nation and shows the percentage of youth who answered yes to either of the above questions in each NYTS. The results indicate less exposure for California youth than their peers

² A description of this survey is provided in Volume 3 of the Technical Documentation (Gilpin et al., 2004)

elsewhere. Further, it shows a recent significant decline in report of exposure for California youth, not observed overall in the rest of the US.

Figure 6.9: Adolescents Who Have Been Exposed to Secondhand Smoke in the Past 7 Days



3. Exposure to Secondhand Tobacco Smoke in Places Other Than Work or Home

The rapid increase in protection of nonsmokers from exposure to secondhand smoke suggests that some California nonsmokers may no longer be exposed to tobacco smoke at all. To estimate the percentage of such California nonsmokers, the 1999 CTS asked the following:

In California, in the past 6 months, have you had to put up with someone smoking near you at any other place besides your home or your workplace?

In 2002, nearly 40% of California nonsmokers led lives free of exposure to secondhand smoke.

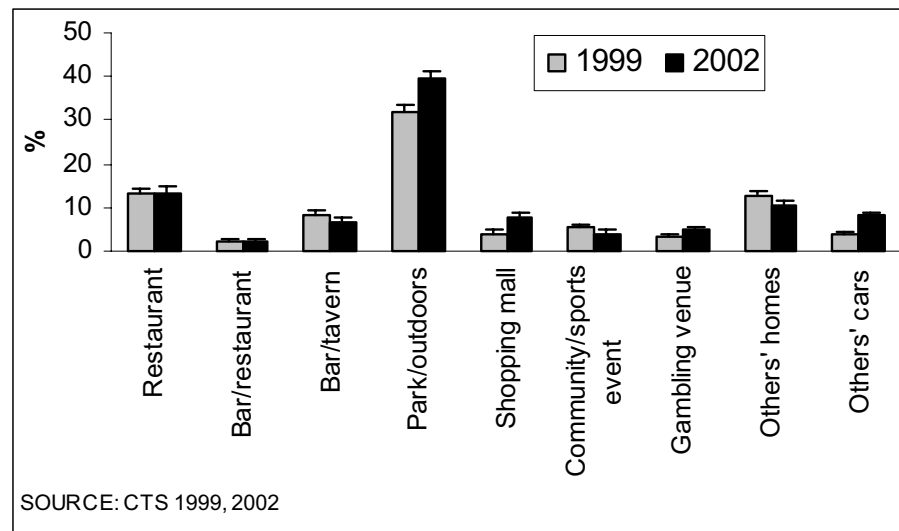
In 2002, the percentage of nonsmokers who answered no to the above question, and who reported smoke-free homes, and, if indoor workers, had smoke-free workplaces with no exposure to smokers in their work area in the past 2 weeks, was 39.7 \pm 1.4%, not significantly higher than the 37.6 \pm 1.4% in 1999.

To determine where nonsmokers were exposed to secondhand smoke, the CTS asked those who answered yes to the above question:

The last time this happened, in California, where were you?

Figure 6.10 presents the percentage of nonsmokers who reported some exposure to secondhand tobacco smoke in places other than work or home during the past 6 months. The place most frequent identified was public parks and other outdoor areas, and exposure in this setting was significantly higher in 2002 than in 1999. Shopping malls, community/sports events, and game room/casino/bingo hall venues were not frequently mentioned, likely a reflection of how people spend their time. Exposure to smoke in other peoples' homes was more frequent, but report of exposure in other's automobiles was relatively low.

Figure 6.10: Places Where Nonsmokers Have Been Exposed to Secondhand Smoke in Past 6 Months



The most frequently identified potentially indoor location of exposure to someone smoking was restaurants. However, some of this exposure may have occurred in outdoor dining areas or patios. The 2002 CTS asked respondents who had been exposed to someone smoking in restaurants or restaurant/bars the following question:

Was this an indoor or outdoor part of the restaurant?

The majority of exposure was in outdoor areas, 67.0% for restaurants and 51.4% for restaurant-bar combinations. Nevertheless, considerable exposure took place indoors, indicating lack of compliance with the law banning smoking in indoor workplaces.

People 25 to 44 years of age were more likely to report exposure in restaurants or restaurant bars (45.4%), perhaps because they go out more often to these places. Report of exposure to a smoker in these settings was 14.5% for those aged 18 to 24 years, 29.8% for those 45 to 64 years of age, and 10.3% for those 65 years or older.

4. Beliefs About Secondhand Smoke

The data presented earlier in this chapter indicate high levels of restrictions on smoking in California, which are, of course, predicated on the population accepting the idea that secondhand smoke is dangerous to nonsmokers. This section looks at how the population views secondhand smoke and the steps nonsmokers take to avoid it.

Primarily a Health Hazard or an Annoyance?

In 2002, for the first time, nonsmokers were asked about their primary concern regarding secondhand smoke:

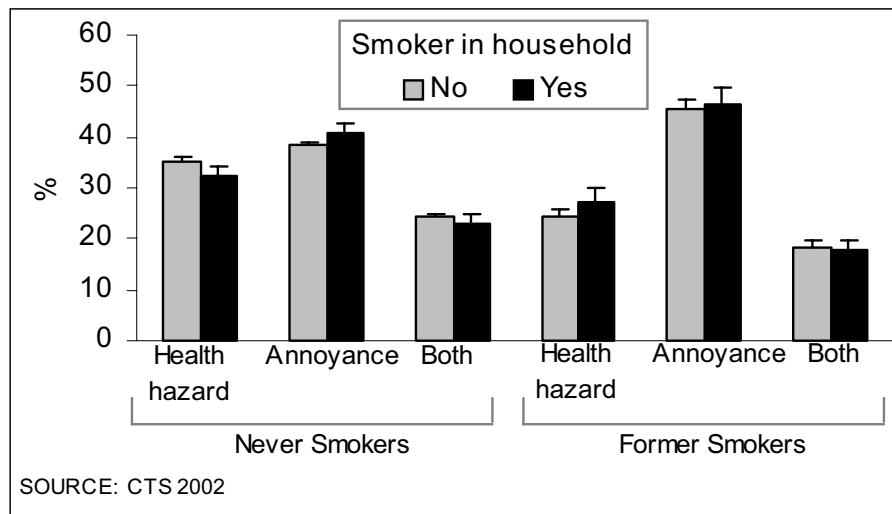
As a nonsmoker, do you generally think of cigarette smoke in the air as:

Primarily a hazard to your health, or

Primarily an annoyance or discomfort?

Figure 6.11 presents the results by whether the respondent was a never or former smoker and whether or not there was an adult smoker in the household. Some respondents refused to choose whether secondhand smoke was primarily a health hazard or primarily an annoyance, but insisted it was both.

Figure 6.11: Secondhand Smoke Primarily a Health Hazard or Annoyance by Smoking History and Smoker in Household



| Smoker in household | Never Smokers | | | Former Smokers | | |
|---------------------|---------------|-----------|------|----------------|-----------|------|
| | Health hazard | Annoyance | Both | Health hazard | Annoyance | Both |
| No | 35.4 | 38.3 | 24.2 | 24.5 | 45.6 | 18.4 |
| Yes | 32.6 | 40.9 | 23.2 | 27.1 | 46.3 | 17.6 |

Never smokers were overall slightly (but significantly) more inclined to consider secondhand smoke primarily an annoyance ($38.6 \pm 1.5\%$) than a health hazard

(35.0±1.6%), but former smokers were much more likely (significant) to consider it an annoyance (45.7±2.5% vs. 29.1±2.6%). Living with a smoker had little impact on these views, either among never or former smokers.

Beliefs About Harmfulness of Secondhand Smoke

Beginning in 1992, the CTS asked adult respondents to agree or disagree with some statements about secondhand smoke:

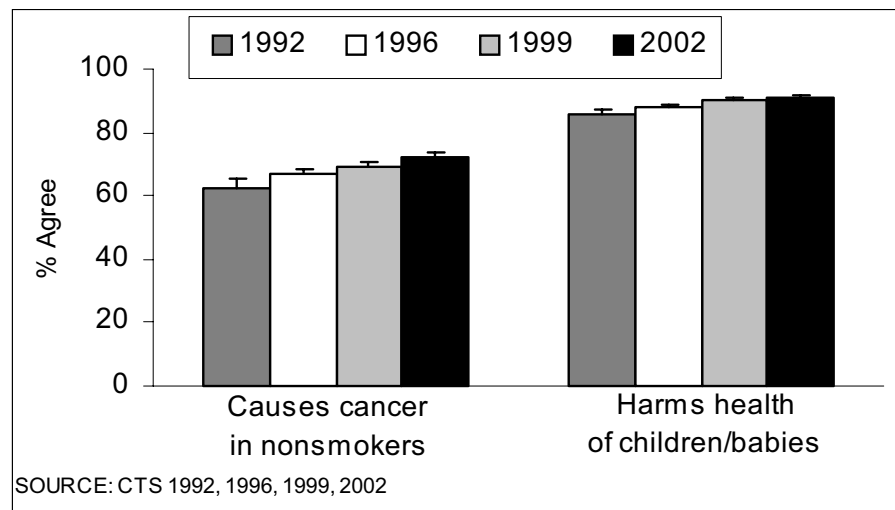
Inhaling smoke from someone else's cigarette causes lung cancer in nonsmokers.

Inhaling smoke from someone else's cigarette harms the health of babies and children.

In 2002, there were high levels of agreement with each of these statements: 83.6±0.9% agreed that secondhand smoke causes cancer in nonsmokers and 94.4±0.6% agreed that it harms the health of babies and children. These levels represented modest increases, by a factor of 5.8% and 1.9%, respectively, from the levels in 1992 when the questions were first asked (causes cancer: 79.0±1.2%; harms health of babies/children: 92.6±0.9%).

Changes in smokers' beliefs about the harmfulness of secondhand smoke are particularly of interest, because their behavior will affect to some extent how much nonsmokers are exposed. **Figure 6.12** shows the trends in smokers' beliefs about the health effects of secondhand smoke.

Figure 6.12: Trends in Smokers' Beliefs About Harmfulness of Secondhand Smoke



| | 1992 | 1996 | 1999 | 2002 |
|---------------------------------|------|------|------|------|
| Causes cancer in nonsmokers | 62.4 | 66.8 | 68.9 | 72.1 |
| Harms health of children/babies | 85.5 | 87.7 | 90.1 | 90.9 |

As for the population in general, smokers were more likely to believe that secondhand smoke harms the health of babies and children than to believe that it causes cancer in

nonsmokers. The belief that secondhand smoke harms the health of babies and children is likely approaching saturation levels in the population. Nevertheless, it is encouraging that increasing percentages of smokers hold this belief. Because the level of belief about secondhand smoke causing cancer was lower among smokers to begin with, it showed a larger factor increase between 1992 and 2002, 15.5%, compared to secondhand smoke harming the health of babies and children, 6.3%.

Nonsmokers' Right to Breathe Clean Air

The adult 2002 CTS added a statement about nonsmokers' right to breathe clean air:

Regardless of smoking status, close to 90% of Californians believe that nonsmokers have the right to breathe clean air.

Nonsmokers are entitled to breathe air free of tobacco smoke.

In 2002, agreement with this statement was high, and likely at saturation levels, regardless of smoking status: 91.6±1.0% of never smokers, 89.2±2.2% of former smokers, and 89.5±1.2% of current smokers held this view. The factor most related to lower levels of agreement was living in a home where smoking is not restricted: 85.8±1.9% of such respondents agreed compared to 91.2±1.3% with some home smoking restrictions and 91.5±0.9% of those living in smoke-free homes.

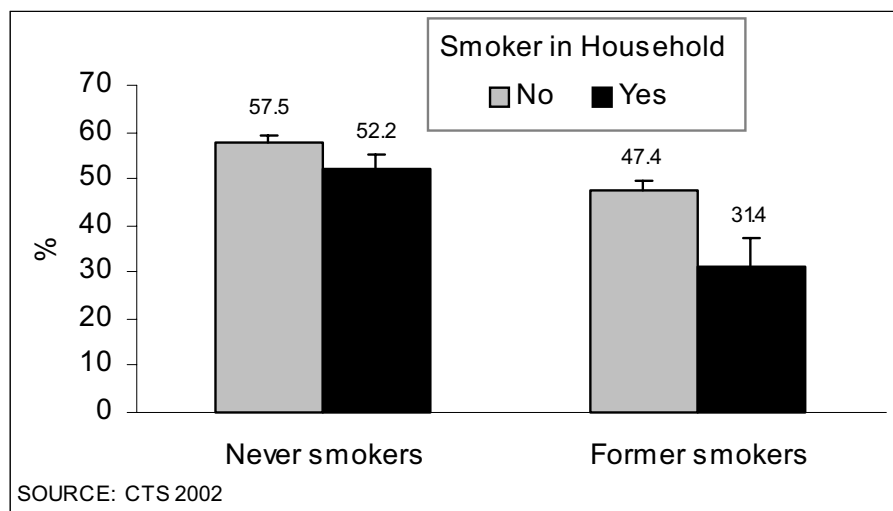
Avoidance of Secondhand Smoke

To determine whether nonsmokers avoided secondhand smoke by avoiding smokers, the adult 2002 CTS also asked nonsmokers to agree or disagree with the following statement:

I tend to avoid socializing with smokers.

Since being unable to avoid interacting with a smoker might affect how a nonsmoker would respond to this question, **Figure 6.13** presents the results by smoking status and according to whether or not there was an adult smoker residing in the household.

Figure 6.13: Avoids Smokers by Smoking History and Smoker in Household



Former smokers were significantly less likely to agree with this statement ($45.3 \pm 2.1\%$) than never smokers ($56.8 \pm 1.6\%$). However, former smokers who do not live with a smoker were much more likely to agree that they avoid socializing with smokers than former smokers who live in the same household with a smoker. The same trend was present for never smokers, but to a lesser extent.

Nonsmokers were asked some questions about what actions they take when confronted with someone smoking either in a place where smoking is allowed or where it is not allowed:

When you are annoyed by the smoke from someone's cigarette in a place where smoking {is/is not} allowed how often do you...

Put up with it.

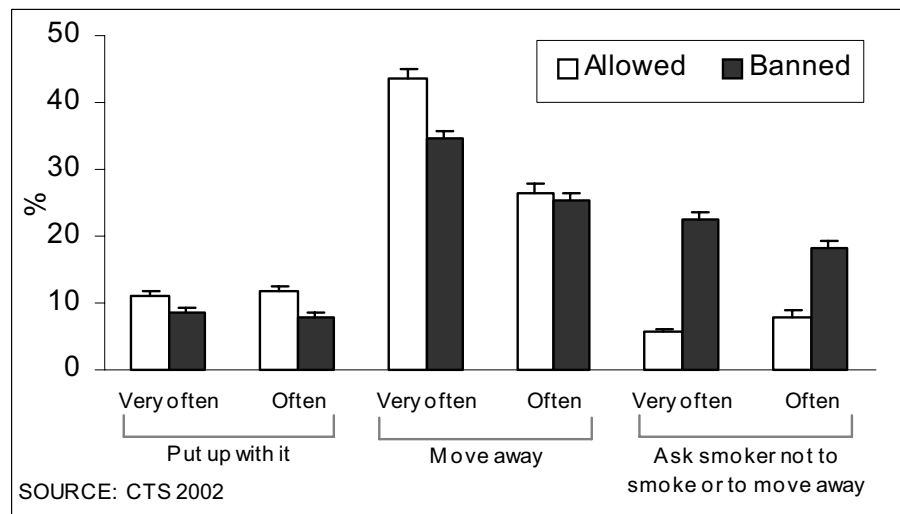
Move away.

Ask the smoker not to smoke or to move.

Respondents could answer very often, often, sometimes, or never to each reaction.

Figure 6.14 presents the results for the percentages of adults indicating that they take each action very often or often for settings where smoking is or is not allowed.

Figure 6.14: Adult Non-Smokers' Responses to Annoyance with Secondhand Smoke



**In 2002,
nonsmokers were
more likely to ask
a smoker to move
or not to smoke,
if they were in an
area where
smoking was not
allowed.**

Whether smoking was allowed or banned affected nonsmokers' responses, particularly with respect to whether they asked the smoker not to smoke or to move away. Regardless, nonsmokers were more likely to simply move away to avoid breathing secondhand smoke than to ask a smoker to take responsibility. About 15-20% of nonsmokers routinely put up with secondhand smoke.

Appendix Table A.6.5 describes the actions taken by nonsmokers for demographic subgroups.

5. Support for Smoking Restrictions

While smoking restrictions are to protect the health of nonsmokers (including children) from the dangers of secondhand smoke (CalEPA, 1997; NCI, 1999), they also indicate the general populations' tolerance or lack of tolerance of smoking. Thus, changes in the populations' beliefs about where smoking should not be allowed can be considered an indicator of the success of tobacco control efforts to change the population's attitudes about smoking.

California vs. Rest of US

The Tobacco Use Supplements for the Current Population Surveys conducted in September, January and May during the periods 1992-1993, 1995-1996, and 1998-1999,³ included a series of questions about where smoking should be allowed, restricted or not allowed at all:

Should smoking be allowed in all areas, in some areas, or not allowed at all in:

restaurants

hospitals

indoor work areas

bars and cocktail lounges

indoor sports venues

indoor shopping malls?

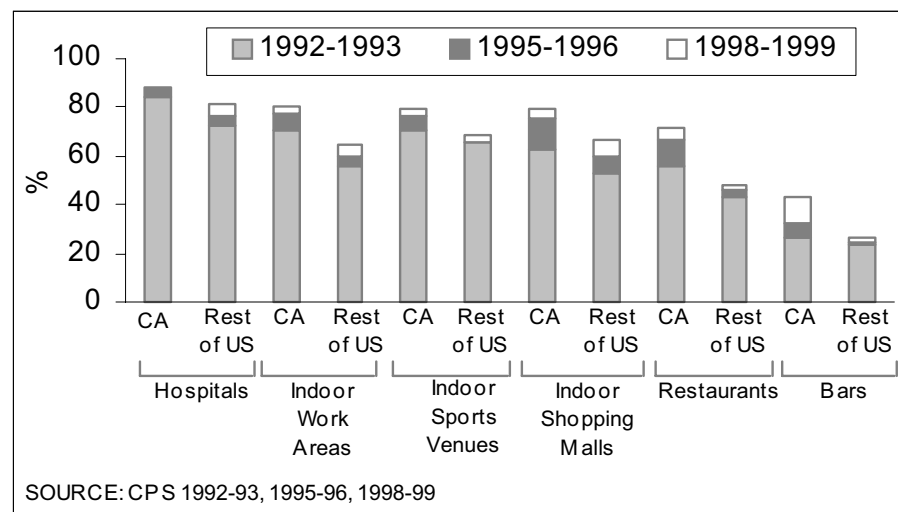
Figure 6.15 summarizes the responses to these questions for all three survey periods and for Californians and respondents in the rest of the US. The light-shaded portion of the bar gives the percentages stating smoking should not be allowed in the various venues in

³ These surveys are described in detail in Volume 3 of the Technical Documentation (Gilpin et al., 2004)

1992-1993, the darker-shaded portion gives the increase in 1995-1996, and the open portion gives the change from 1995-1996 to 1998-1999. Thus, the full height of the bar gives the total percentage in 1998-1999 stating that smoking should not be allowed in each venue.

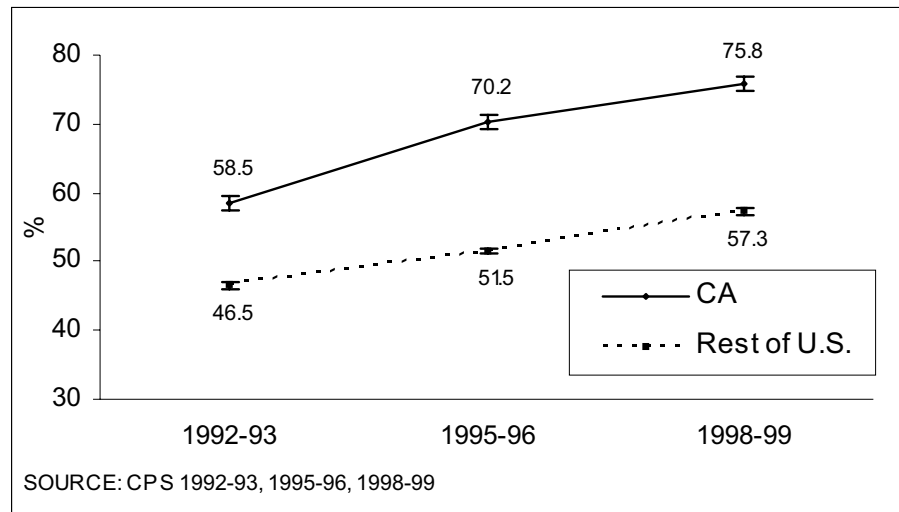
Hospitals were the venue for which the greatest percentages of respondents both in California and nationally thought smoking should not be allowed. Indoor work areas and sports venues were next, with Californians showing greater increases, likely associated with the state law banning smoking in indoor workplaces, which took effect in 1995. Indoor shopping malls showed higher percentages than restaurants. In fact, only bars showed lower percentages of respondents that thought that smoking should not be allowed than restaurants.

Figure 6.15: Where Smoking Should Not Be Allowed, California vs. US



California showed substantial percentage increases for all venues except for hospitals, which already were at very high levels in 1992-1993. By 1998-1999, 43.2% of Californians thought smoking should never be allowed in bars, a 60.6% factor increase from 1992-1993, with most of the increase after bars were included in the smoke-free workplace law beginning in January 1998. In California, relatively large factor increases were also observed for restaurants (28.7%) and indoor shopping malls (26.8%). The percentage of respondents stating that smoking should not be allowed at all in four or more of the six venues was examined as a summary measure. The results are presented in **Figure 6.16** for California and the rest of the US for all survey periods.

Figure 6.16: Respondents Stating Smoking Should Not Be Allowed at All in Four or More of the Six Venues, California vs. Rest of U.S.

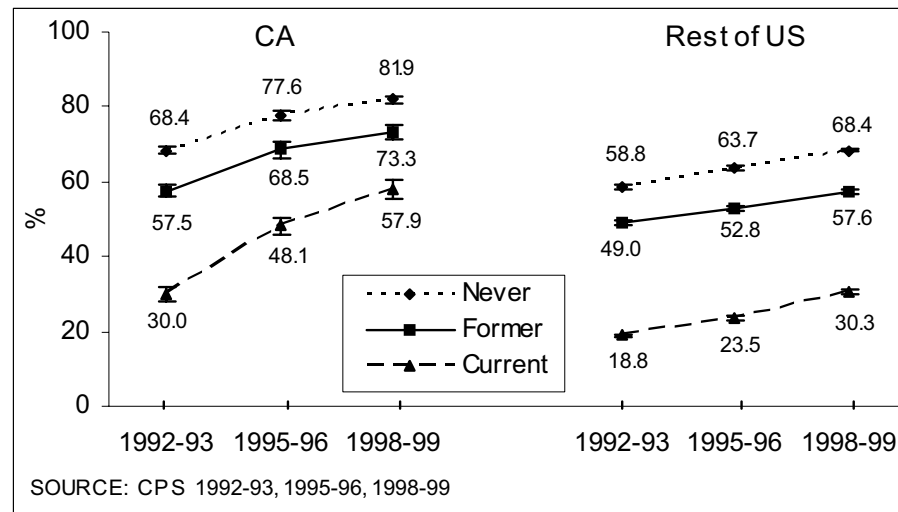


In 1998-1999 the rest of the US was where California was in 1992-1993 with respect to support for smoke-free venues.

In 1992-1993, a significantly higher percentage of Californians were in favor of smoking bans in four or more of the venues than people in the rest of the US in 1998-1999. By 1992-1993, the California Tobacco Control Program was already well underway, which could explain this finding. Nevertheless, both Californians and people in the rest of the US showed considerable and significant increases by 1998-1999, with Californians increasing their level of support at a faster rate by a factor of 30% compared to 23% for people in the rest of the US.

Figure 6.17 shows changes in support for smoking bans by respondent smoking status. As would be expected, current smokers were less likely to favor smoking bans than former smokers or never smokers. California's smokers, however, made huge strides in their support for smoke-free venues. Between 1992-1993 and 1998-1999, the factor increase was 93% among California smokers, compared to 61% for smokers in the rest of the US. In 1998-1999, California's *smokers* showed levels of support for bans similar to *never smokers* in the rest of the US in 1992-1993.

Figure 6.17: Support for Smoking Bans by Smoking Status, California vs. Rest of U.S.



Demographic breakouts of support for four or more smoke-free venues are presented in Appendix Table A.6.6

Californians have experienced the benefits of smoke-free workplaces, including restaurants, since 1995. Thus, it is not surprising that they show high and increasing levels of support for smoke-free public places. As more people in the rest of the US experience smoke-free environments, it is likely that their attitudes will change more rapidly as well.

Californians' Opinions About Smoking Bans in Places Where Smoking is Presently Allowed

The results presented in the previous section led to the inclusion of a new set of questions in the 2002 CTS adult questionnaire. These questions asked respondents about preferences for allowing smoking in settings where it is not currently prohibited:

Should smoking be allowed or not allowed in:

Outdoor workplaces such as loading docks, construction sites

Outdoor public places such as parks, beaches, golf courses, zoos, sports stadiums

Children's play yards or sports fields

Outdoor restaurant dining patios

Outdoor bar/club patron patios

Just outside entrances to buildings

Common areas of apartments or condo complexes, such as hallways, rec rooms, laundry rooms, pool areas, etc.

Common areas of hotels or motels, such as hallways, exercise rooms, pool areas, etc.

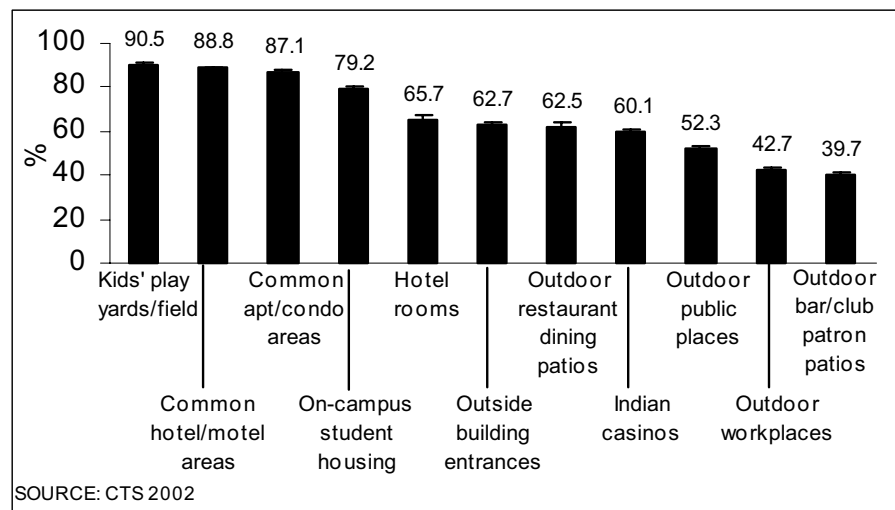
Hotel rooms

Indian casinos

On-campus student housing at public colleges and universities?

Figure 6.18 shows the percentages of Californians stating that smoking should not be allowed in each venue.

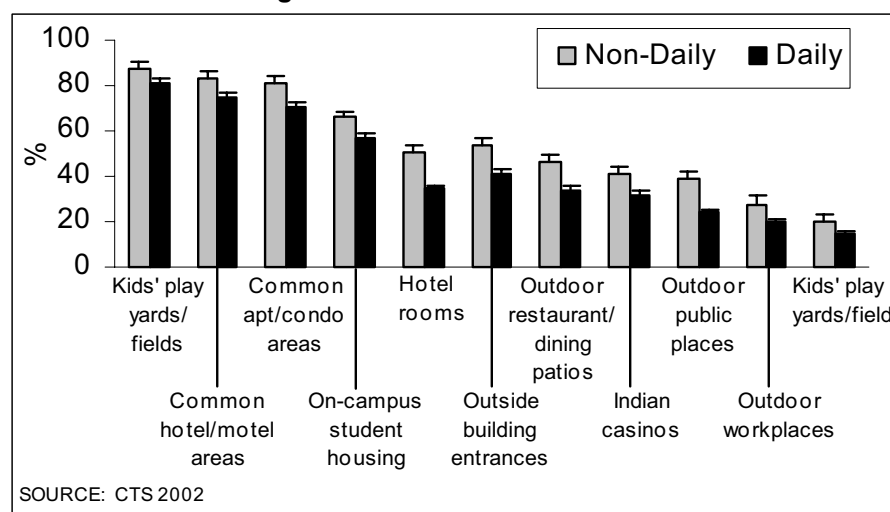
Figure 6.18: Where Smoking Should Not Be Allowed



In 2002, Californians showed high levels of support for banning smoking in children's play areas, and in the common areas of apartments and condominiums.

The venue with the highest support to be smoke-free was children's play areas/sports fields, with well over 90% of Californians overall and 81.1±1.6% of current daily smokers supporting smoking bans in this setting. Both the common areas of hotels/motels and of apartments/condos also showed levels of support approaching 90% overall and over 80% among smokers.

As might be expected, smoking status was related to support for these smoke-free venues. **Figure 6.19** shows the level of support among current daily and current non-daily smokers.

Figure 6.19: Where Smoking Should Not Be Allowed by Current Smoking Level

Non-daily smokers were more likely to support these smoke-free venues than daily smokers, probably because they can be more flexible about not needing to smoke in situations where smoking is not allowed.

Appendix Table A.6.7 gives a complete demographic breakout of these data.

The high levels of support, including by smokers, for banning smoking in children's playgrounds and sports fields and in the common areas of dwellings/hotels indicate that new local ordinances that address smoking in these settings are being responsive to the populations' concerns.

6. Summary

Californians have made huge gains in protection from secondhand smoke. Most of the gains occurred by 1996, after the law banning smoking in indoor workplaces was implemented in 1995. Since then, the gains have continued but at a more modest rate.

While exposure to secondhand smoke in the workplace has declined by a factor of 58.8% (from $29.1 \pm 1.7\%$ in 1993 to $12.0 \pm 1.0\%$ in 2002), of those reporting exposure, nearly two-thirds ($64.3 \pm 4.3\%$) said they were exposed daily. Further, exposure was higher in types of workplaces where smoking prevalence among the workers was highest, suggesting that coworkers were responsible. This finding suggests that noncompliance is still a problem. The daily exposure rate was low among office workers ($6.0 \pm 3.6\%$), but accounted for 296,601 nonsmokers exposed on a daily basis. In stores/warehouses where daily exposure was higher ($11.2 \pm 5.1\%$), just 164,281 nonsmokers were involved. Thus, it might make

sense to concentrate on improving compliance in offices, where many more people are employed.

Many more Californians lived in smoke-free homes in 2002 ($76.9 \pm 0.9\%$) than did in 1993 ($50.9 \pm 0.9\%$). In 2002, this included nearly half of all current smokers ($49.0 \pm 1.9\%$). Children who lived in homes where no adults smoked or whose home was smoke-free if adults smoked were considered to be protected from secondhand smoke in the home. In 2002, $90.2 \pm 0.9\%$ of California children and adolescents (0 to 17 years of age) were protected from secondhand smoke at home, slightly but significantly higher than in 1996 ($86.3 \pm 0.9\%$) and significantly increased by a factor of 17.0% from 1993 ($77.1 \pm 1.4\%$). African American children and adolescents remained the least protected ($85.7 \pm 2.4\%$), but have shown gains comparable to other racial/ethnic groups. Considering children under the age of 6 years who lived in a home where all adults smoked, the percentage protected increased from $18.0 \pm 6.5\%$ in 1993 to $62.0 \pm 6.6\%$ in 2002, a factor increase of 244%.

Increased public knowledge of the dangers of secondhand smoke and the experience of smoke-free workplaces were likely responsible for the increased protection of nonsmokers from secondhand smoke in the home. Nonsmokers were relieved not to have to breathe secondhand smoke at work, and smokers found that they could adapt. In 2002, $91.6 \pm 1.0\%$ of never smokers, $89.2 \pm 2.2\%$ of former smokers and $89.5 \pm 1.2\%$ of current smokers in California agreed that nonsmokers were entitled to breathe air free from tobacco smoke. Also, in 2002, the adult population showed high levels of agreement that secondhand smoke causes cancer in nonsmokers ($83.6 \pm 0.9\%$) and harms the health of babies and children ($94.4 \pm 0.6\%$).

National survey data were used to compare Californians to people in the rest of the US according to their level of support for six public places (hospitals, indoor workplaces, restaurants, bars/cocktail lounges, indoor sports venues, indoor shopping malls) to not allow smoking at all. Between 1993 and 1999, both Californians and people in the rest of the US showed increased support for at least four out of these six venues to be smoke-free. However, Californians' support increased by a factor of 30%, compared to a factor of 23% for people in the rest of the US, even though they started out in 1993 at a higher level than the rest of the US attained by 1999. Smokers showed particularly high increases in their level of support for smoke-free public places. California smokers increased support for at least four of the six venues to be smoke-free by a factor of 93% over this period compared to a factor of 61% for smokers in the rest of the US.

New questions on the 2002 California Tobacco Survey asked adults about banning smoking at venues where smoking is currently allowed, including some outdoor settings. Support was high among both nonsmokers and smokers for smoking bans in children's play yards and sports fields ($90.5 \pm 0.6\%$), the common areas of hotels/motels ($88.8 \pm 0.5\%$), and the common areas of apartment buildings/condos ($87.1 \pm 0.8\%$). The high levels of support indicate that new local ordinances that address smoking in these settings are being responsive to the populations' concerns.

Chapter

6

APPENDIX

Protection of Nonsmokers from Secondhand Smoke

1. Exposure to Secondhand Smoke in the Workplace

Table A.6.1 presents the percentage of indoor workers reporting that their workplace was smoke-free. Females were significantly more likely than males in each survey to report a smoke-free workplace. While the youngest age group was significantly less likely than adults aged 25-64 years to report a smoke-free workplace in 1990 and 1992, this changed in 1996, and by 2002 all age groups showed about the same level of report of a smoke-free workplace. Similarly, in 1990 and 1992 there were significant racial/ethnic disparities in report of a smoke-free workplace that have largely disappeared in recent years. However, Hispanics remain slightly less likely to report a smoke-free workplace in 2002, with the difference significant when compared to Non-Hispanic Whites. In all years, there was a decline in exposure with increased educational attainment. While this disparity has decreased, college graduates were still significantly more likely to report a smoke-free workplace in 2002 than other groups. In general, those with high annual household incomes were more likely than those with low incomes to report smoke-free workplaces. In 2002, those with annual household incomes of \$75,000 or more were significantly more likely than those with incomes between \$10,000 and \$30,000 to report smoke-free workplaces.

| Table A.6.1 Indoor Workers Reporting Smoke-free Workplaces | | | | | |
|---|--------------|--------------|--------------|-------------|-------------|
| | 1990 % | 1992 % | 1996 % | 1999 % | 2002 % |
| Overall | 35.0 (±1.3) | 46.3 (±2.0) | 90.5 (±0.9) | 93.4 (±0.8) | 95.4 (±0.8) |
| Gender | | | | | |
| Male | 32.7 (±2.0) | 41.8 (±2.4) | 87.9 (±1.5) | 91.8 (±1.2) | 93.9 (±1.5) |
| Female | 37.2 (±1.7) | 49.7 (±3.1) | 93.4 (±1.0) | 95.0 (±1.0) | 97.1 (±0.7) |
| Age | | | | | |
| 18-24 | 26.8 (±3.4) | 32.4 (±4.5) | 90.0 (±2.4) | 92.5 (±2.4) | 95.0 (±1.0) |
| 25-44 | 37.2 (±2.0) | 47.2 (±2.7) | 89.8 (±1.4) | 93.7 (±1.2) | 95.6 (±0.9) |
| 45-64 | 36.1 (±2.9) | 52.9 (±4.2) | 92.1 (±1.7) | 93.9 (±1.3) | 95.3 (±1.8) |
| 65+ | 30.5 (±10.6) | 40.3 (±17.0) | 83.5 (±28.1) | 85.1 (±7.2) | 96.7 (±2.5) |
| Race/Ethnicity | | | | | |
| African American | 42.3 (±7.9) | 45.9 (±8.3) | 92.1 (±6.5) | 94.0 (±3.5) | 96.2 (±1.3) |
| Asian/PI | 33.0 (±5.5) | 43.9 (±8.8) | 91.5 (±4.1) | 94.1 (±2.8) | 95.3 (±3.6) |
| Hispanic | 25.8 (±2.9) | 30.5 (±4.3) | 87.8 (±2.6) | 91.1 (±2.2) | 93.7 (±1.9) |
| Non-Hispanic White | 37.9 (±1.7) | 51.8 (±2.3) | 91.3 (±1.7) | 94.3 (±0.8) | 96.4 (±0.8) |
| Education | | | | | |
| <12 | 21.9 (±3.7) | 26.3 (±6.3) | 83.6 (±4.8) | 87.5 (±4.1) | 91.9 (±3.0) |
| 12 | 30.5 (±2.9) | 42.1 (±4.5) | 88.4 (±2.0) | 90.8 (±1.7) | 92.3 (±2.3) |
| 13-15 | 36.4 (±2.7) | 48.7 (±2.9) | 92.0 (±1.0) | 95.4 (±1.0) | 95.6 (±1.1) |
| 16+ | 45.4 (±2.3) | 58.1 (±3.0) | 96.1 (±1.3) | 95.6 (±0.9) | 98.3 (±0.7) |
| Income | | | | | |
| <\$10,000 | 20.7 (±6.4) | | 82.8 (±6.6) | 87.5 (±7.6) | 95.3 (±2.1) |
| \$10,001-\$20,000 | 28.6 (±3.4) | | 86.8 (±3.5) | 91.4 (±3.7) | 90.2 (±4.4) |
| \$20,001-\$30,000 | 30.1 (±3.8) | | 87.5 (±2.5) | 90.9 (±2.8) | 93.0 (±2.3) |
| \$30,001-\$50,000 | 37.0 (±2.3) | | 89.8 (±2.1) | 91.2 (±1.9) | 94.6 (±1.5) |
| \$50,001-\$75,000 | 38.7 (±3.2) | | 93.9 (±1.4) | 93.9 (±1.4) | 96.5 (±1.1) |
| Over \$75,000 | 44.0 (±3.2) | | 95.5 (±1.2) | 96.7 (±0.7) | 97.1 (±1.5) |
| Missing | 32.1 (±4.5) | | 86.5 (±3.4) | 94.5 (±2.3) | 94.6 (±1.7) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1992, 1996, 1999, 2002

Table A.6.2 presents the percentage of non-smoking indoor workers exposed to someone smoking in their work area in the past 2 weeks. All groups have shown major declines in exposure from 1990 to 2002. Through 1999, males continued to be more exposed to secondhand smoke in the workplace than females, but the difference in 2002 was not significant. Young adult (18-24 years) indoor workers had much higher rates of exposure in each survey year, and in some years (1993,1996, 2002), the difference between the next two older groups was also significant. In all years, Hispanics were significantly more likely to report exposure compared to Non-Hispanic Whites, and higher educated individuals were significantly less likely to report exposure than most other groups. In 2002, the lowest education group showed only about as much exposure as the highest educated group did in 1990. Generally, the group with the highest household incomes is less exposed than the lower income groups, but in 2002, it was only significantly less exposed than those from households with annual incomes of \$10,000-\$30,000.

| Table A.6.2 Exposure of Indoor Workers to Secondhand Smoke in the Past 2 Weeks | | | | | | |
|---|-------------|-------------|-------------|-------------|-------------|---------------------------------|
| | 1990 % | 1993 % | 1996 % | 1999 % | 2002 % | Factor Decrease 1990-2002 |
| Overall | 29.1 (±1.7) | 22.5 (±1.3) | 11.8 (±1.4) | 15.6 (±1.4) | 12.0 (±1.0) | -58.8 |
| Gender | | | | | | |
| Male | 35.6 (±2.9) | 27.7 (±1.9) | 16.2 (±2.3) | 18.2 (±1.9) | 13.3 (±1.6) | -62.6 |
| Female | 22.9 (±1.9) | 17.2 (±1.6) | 7.2 (±1.5) | 13.1 (±2.2) | 10.6 (±1.5) | -53.7 |
| Age | | | | | | |
| 18-24 | 41.8 (±4.6) | 31.4 (±3.8) | 17.6 (±4.7) | 29.3 (±4.8) | 22.5 (±1.9) | -46.2 |
| 25-44 | 28.1 (±2.3) | 22.7 (±1.7) | 12.2 (±1.9) | 15.5 (±2.0) | 12.5 (±2.0) | -55.5 |
| 45-64 | 23.2 (±2.6) | 16.7 (±2.4) | 8.6 (±2.5) | 10.2 (±3.1) | 6.8 (±1.7) | -70.7 |
| 65+ | 16.7 (±9.2) | 17.9 (±5.8) | 9.8 (±6.7) | 12.3 (±7.0) | 3.0 (±3.7) | -82.0 |
| Race/Ethnicity | | | | | | |
| African American | 22.8 (±7.3) | 19.4 (±4.4) | 7.9 (±5.1) | 15.3 (±5.7) | 9.5 (±2.3) | -58.3 |
| Asian/PI | 27.8 (±5.6) | 26.4 (±5.2) | 11.6 (±3.9) | 19.7 (±7.4) | 11.3 (±3.4) | -59.4 |
| Hispanic | 39.8 (±4.8) | 32.2 (±3.8) | 19.6 (±3.8) | 20.4 (±3.0) | 15.6 (±2.5) | -60.8 |
| Non-Hispanic White | 26.0 (±1.8) | 19.0 (±1.4) | 8.9 (±1.6) | 12.4 (±1.4) | 10.4 (±1.3) | -60.0 |
| Education | | | | | | |
| <12 | 36.0 (±3.7) | 31.3 (±2.5) | 21.0 (±3.2) | 23.0 (±3.4) | 16.1 (±2.2) | -55.3 |
| 12 | 40.0 (± 15) | 20.9 (±6.8) | 24.4 (± 12) | 11.9 (± 10) | 11.7 (±6.2) | -70.8 |
| 13-15 | 30.1 (±3.1) | 21.7 (±1.9) | 9.4 (±2.1) | 15.4 (±2.3) | 13.0 (±1.9) | -56.8 |
| 16+ | 18.5 (±1.7) | 13.6 (±1.3) | 5.0 (±1.2) | 10.1 (±2.0) | 8.5 (±1.6) | -54.1 |
| Income | | | | | | |
| <\$10,000 | 40.5 (±9.8) | | 28.6 (± 10) | 19.5 (±9.4) | 12.2 (±4.7) | -70.0 |
| \$10,001-\$20,000 | 36.6 (±6.5) | | 22.2 (±7.9) | 19.4 (±5.4) | 19.8 (±4.4) | -45.9 |
| \$20,001-\$30,000 | 33.0 (±3.2) | | 16.4 (±4.4) | 17.7 (±4.3) | 16.8 (±3.9) | -49.1 |
| \$30,001-\$50,000 | 28.8 (±3.2) | | 11.8 (±2.6) | 18.9 (±4.5) | 12.8 (±3.4) | -55.6 |
| \$50,001-\$75,000 | 25.1 (±3.1) | | 6.0 (±2.2) | 14.8 (±2.7) | 10.5 (±2.1) | -58.2 |
| Over \$75,000 | 21.7 (±2.9) | | 5.3 (±1.5) | 12.3 (±2.0) | 9.8 (±1.6) | -54.8 |
| Missing | 30.0 (±7.2) | | 14.2 (±5.3) | 13.6 (±3.8) | 12.4 (±4.5) | -58.7 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1993, 1996, 1999, 2002

Table A.6.3 presents the data on second-hand smoke exposure for non-smoking indoor workers from the 2002 CTS, and shows the percentage exposed on a daily basis together with the percentage this represents of the group with any exposure in the past 2 weeks. Overall, of those exposed in the past 2 weeks, 64.7% were exposed on a daily basis. While this analysis is not based on statistical analyses, there are a few groups that stand out. Young adults aged 18-24 years were more exposed in general and daily so the fraction exposed on a daily basis was not much different from other age groups. So few people 65 years or older are in the workforce that these data are not interpretable. African Americans were less exposed in general, but a larger fraction of those exposed were exposed on a daily basis compared to other groups. Fewer high school graduates who were exposed were exposed daily.

| Table A.6.3 Level of Exposure of Nonsmokers to Secondhand Smoke in the Past 2 Weeks by Demographics | | | |
|--|--|--------------------------------|----------------------------------|
| | Exposed in last 2 weeks % | Exposed daily % | Ratio Daily : Any |
| Overall | 11.9 (±1.0) | 7.7 (±0.7) | 64.7 |
| Gender | | | |
| Male | 13.3 (±1.6) | 8.2 (±1.1) | 61.7 |
| Female | 10.5 (±1.5) | 7.1 (±1.3) | 67.6 |
| Age | | | |
| 18-24 | 22.5 (±1.8) | 14.6 (±1.4) | 64.9 |
| 25-44 | 12.3 (±1.9) | 8.1 (±1.4) | 65.9 |
| 45-64 | 6.9 (±1.7) | 4.2 (±1.2) | 60.9 |
| 65± | 3.0 (±3.7) | 0.2 (±0.4) | 6.7 |
| Race/ethnicity | | | |
| African American | 9.4 (±2.3) | 7.3 (±2.2) | 77.7 |
| Asian/PI | 11.2 (±3.3) | 7.4 (±2.4) | 66.1 |
| Hispanic | 15.4 (±2.4) | 10.0 (±2.2) | 64.9 |
| Non-Hispanic White | 10.4 (±1.3) | 6.4 (±1.0) | 61.5 |
| Other | 11.3 (±5.9) | 7.0 (±4.7) | 61.9 |
| Education | | | |
| <12 | 16.2 (±2.3) | 10.6 (±2.0) | 65.4 |
| 12 | 11.8 (±6.2) | 5.7 (±3.0) | 48.3 |
| 13-15 | 12.8 (±1.9) | 8.4 (±1.4) | 65.6 |
| 16+ | 8.4 (±1.6) | 5.2 (±1.3) | 61.9 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95%
 CONFIDENCE LIMITS.
 SOURCE: CTS 2002

2. Exposure to Secondhand Smoke in the Home

Table A.6.4 shows the percentages of adults reporting that their homes are completely smoke-free. Beginning in 1993, women were more likely to report a smoke-free home, and this difference was significant in 2002. Persons aged 25-44 years were more likely to report smoke-free homes from 1996 on, perhaps because this age group is most likely to have young children in the home. In earlier years, Hispanics were significantly more likely than Non-Hispanic Whites to report smoke-free homes, but by 2002, this difference had largely disappeared. Higher educated respondents were more likely than less education groups to say their homes were smoke-free, but this gap was narrowing by 2002. The same trend was apparent for household income level.

| Table A.6.4 Total Household Bans | | | | | |
|-------------------------------------|-------------|-------------|-------------|-------------|-------------|
| | 1992 % | 1993 % | 1996 % | 1999 % | 2002 % |
| Overall | 48.1 (±1.9) | 50.9 (±0.9) | 63.7 (±0.4) | 72.8 (±1.1) | 76.9 (±0.9) |
| Gender | | | | | |
| Male | 49.4 (±2.7) | 49.8 (±1.2) | 61.6 (±0.8) | 71.8 (±1.3) | 74.6 (±1.4) |
| Female | 46.9 (±2.6) | 52.0 (±1.2) | 65.8 (±0.6) | 73.9 (±1.3) | 79.1 (±1.3) |
| Age | | | | | |
| 18-24 | 45.0 (±5.5) | 52.6 (±2.1) | 63.8 (±1.8) | 70.1 (±2.6) | 68.8 (±1.3) |
| 25-44 | 49.6 (±2.9) | 52.4 (±1.2) | 67.0 (±0.8) | 76.1 (±1.5) | 80.2 (±1.3) |
| 45-64 | 48.9 (±3.6) | 48.7 (±1.8) | 60.9 (±1.2) | 71.2 (±2.0) | 77.0 (±2.0) |
| 65+ | 45.2 (±3.9) | 48.0 (±2.3) | 58.1 (±1.5) | 68.4 (±2.7) | 75.0 (±2.8) |
| Race/Ethnicity | | | | | |
| African American | 46.4 (±7.0) | 47.1 (±3.1) | 56.6 (±2.2) | 68.5 (±3.7) | 72.9 (±2.6) |
| Asian/PI | 49.2 (±6.0) | 60.1 (±3.2) | 68.2 (±2.1) | 71.3 (±3.5) | 79.5 (±3.1) |
| Hispanic | 53.1 (±4.0) | 57.1 (±2.1) | 72.7 (±1.2) | 78.0 (±1.9) | 78.1 (±1.8) |
| Non-Hispanic White | 46.3 (±2.0) | 48.2 (±1.0) | 60.3 (±0.7) | 71.3 (±1.1) | 76.6 (±1.2) |
| Education | | | | | |
| <12 | 44.4 (±2.9) | 48.2 (±1.4) | 62.9 (±1.1) | 70.4 (±1.8) | 74.9 (±1.6) |
| 12 | 55.7 (±7.3) | 49.9 (±4.7) | 58.2 (±4.2) | 72.6 (±5.9) | 79.4 (±3.4) |
| 13-15 | 50.7 (±2.5) | 50.5 (±1.5) | 61.9 (±1.0) | 73.4 (±1.6) | 75.2 (±1.6) |
| 16+ | 53.3 (±3.3) | 58.5 (±1.7) | 67.5 (±0.7) | 76.2 (±1.6) | 80.8 (±1.6) |
| Income | | | | | |
| <\$10,000 | | | 61.1 (±1.8) | 66.7 (±4.2) | 71.4 (±3.7) |
| \$10,001-\$20,000 | | | 60.6 (±1.8) | 73.9 (±3.9) | 74.0 (±3.3) |
| \$20,001-\$30,000 | | | 60.1 (±1.9) | 69.4 (±3.1) | 75.4 (±2.4) |
| \$30,001-\$50,000 | | | 62.7 (±1.4) | 71.0 (±2.8) | 75.7 (±2.7) |
| \$50,001-\$75,000 | | | 65.0 (±1.5) | 73.2 (±2.0) | 77.1 (±2.2) |
| Over \$75,000 | | | 68.9 (±1.2) | 78.4 (±1.9) | 81.4 (±1.8) |
| Missing | | | 68.0 (±2.1) | 72.2 (±3.5) | 74.8 (±2.9) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1992, 1993, 1996, 1999, 2002

3. Nonsmoker Responses when Exposed to Secondhand Smoke

Table A.6.5 shows nonsmokers' reactions to exposure to secondhand smoke in settings where smoking is prohibited. Respondents answered all three questions with responses of: very often, often, sometimes or rarely. Note that the often and very often responses were combined for one of the three questions. Females were significantly less likely to put up with it very often or often and more likely to move away very often to avoid it than males. People over age 65 years were significantly less likely to ask the smoker not to smoke or move away themselves very often than younger people, and those aged 45-64 years were

significantly more likely to put the burden on the smoker than any other age group.

However, those aged 45-64 years were also significantly more likely than younger people to move away. All age groups were about as likely to put up with smoking in places where it is prohibited. Hispanics were significantly less likely than other racial/ethnic groups to ask a smoker not to smoke or move away or to move away themselves very often. They were more likely to answer rarely to all three questions. The Asian/PI group was significantly more likely to put up with someone smoking very often or often than

| Table A.6.5 Non-smokers Responses to Secondhand Smoke in Situations Where Smoking Not Allowed | | | |
|---|---|--------------------------|--|
| | Ask Smoker Not to Smoke- Very Often | Move Away- Very Often | Put Up With It-Very Often or Often |
| Overall | 22.4 (±1.1) | 34.5 (±1.2) | 16.4 (±1.1) |
| Gender | | | |
| Male | 23.1 (±1.4) | 30.2 (±1.9) | 18.3 (±1.9) |
| Female | 21.8 (±1.3) | 38.3 (±1.7) | 14.7 (±1.4) |
| Age | | | |
| 18-24 | 20.7 (±1.3) | 29.5 (±1.8) | 18.1 (±1.0) |
| 25-44 | 23.2 (±1.7) | 33.2 (±2.1) | 16.2 (±1.3) |
| 45-64 | 26.4 (±1.1) | 39.2 (±2.8) | 15.3 (±2.5) |
| 65+ | 14.4 (±2.5) | 34.3 (±3.7) | 17.5 (±2.9) |
| Race/ethnicity | | | |
| African American | 27.0 (±2.6) | 38.4 (±3.4) | 13.2 (±2.8) |
| Asian/PI | 22.5 (±3.6) | 40.8 (±4.3) | 28.4 (±5.2) |
| Hispanic | 17.0 (±1.7) | 30.2 (±2.4) | 12.4 (±1.3) |
| Non-Hispanic White | 25.1 (±1.3) | 35.4 (±1.8) | 16.2 (±1.4) |
| Education | | | |
| <12 | 11.6 (±2.2) | 25.5 (±3.5) | 13.8 (±2.3) |
| 12 | 20.2 (±2.5) | 35.4 (±2.7) | 20.2 (±2.6) |
| 13-15 | 26.3 (±1.7) | 35.1 (±2.2) | 15.1 (±1.7) |
| 16+ | 27.3 (±2.1) | 38.7 (±2.2) | 16.1 (±1.9) |
| Income | | | |
| <\$10,000 | 16.9 (±3.8) | 23.4 (±4.5) | 13.3 (±2.8) |
| \$10,000-\$20,000 | 20.1 (±3.5) | 33.9 (±4.6) | 17.1 (±3.2) |
| \$20,001-\$30,000 | 17.8 (±2.2) | 36.4 (±3.8) | 17.4 (±3.1) |
| \$30,001-\$50,000 | 20.3 (±2.4) | 33.6 (±3.1) | 15.1 (±2.9) |
| \$50,001-\$75,000 | 22.8 (±2.7) | 34.8 (±3.1) | 18.2 (±2.8) |
| >\$75,000 | 29.1 (±2.3) | 37.6 (±2.5) | 16.9 (±2.3) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 2002

other racial/ethnic groups. To some extent, the income and educational differences likely reflect the racial/ethnic differences. Those with at least a high school education were significantly more likely to ask the smoker to not smoke, move, or to move away themselves than those who did not graduate from high school.

4. Attitudes About Where Smoking Should Not be Allowed

Table A.6.6 summarizes the attitudes of Californians and those in the rest of the US concerning where smoking should not be allowed at all in four or more of the six venues in different demographic subgroups over the three survey periods. In all survey periods, females were more likely than males to state that smoking should not be allowed in four or more of the venues. However, the gender gap tended to widen in the rest of the US. Whereas younger adults were less likely than older adults to agree that four or more of the venues should be smoke-free in 1992-1993, they showed greater increases by 1998-1999 (45.8% factor change in Californian and 38.9% factor change in the rest of the US), so that there was little difference by age in California in the later period.

| Table A.6.6 Percentages of Demographic Groups in California and the Rest of the US Stating That Smoking Should Not be Allowed at All in Four or More of the Six Venues** | | | | | | |
|--|---------------|---------------|--------------|---------------|---------------|---------------|
| | 1992-1993 | | 1995-1996 | | 1998-1999 | |
| | CA | US* | CA | US* | CA | US* |
| Overall | 58.5 (± 1.0) | 46.5 (± 0.41) | 70.2 (± 1.1) | 51.5 (± 0.34) | 75.8 (± 1.0) | 57.3 (± 0.41) |
| Gender | | | | | | |
| Male | 54.7 (± 1.5) | 43.3 (± 0.5) | 66.6 (± 1.6) | 47.4 (± 0.5) | 72.0 (± 1.3) | 52.8 (± 0.5) |
| Female | 62.2 (± 1.1) | 49.3 (± 0.5) | 73.6 (± 1.3) | 55.1 (± 0.4) | 79.4 (± 1.2) | 61.4 (± 0.5) |
| Age | | | | | | |
| 18-30 | 56.0 (± 1.9) | 40.5 (± 0.7) | 70.7 (± 2.1) | 49.2 (± 0.9) | 79.4 (± 1.7) | 55.5 (± 0.8) |
| 31-44 | 60.0 (± 1.7) | 45.5 (± 0.6) | 71.3 (± 1.7) | 50.0 (± 0.6) | 76.4 (± 1.5) | 56.3 (± 0.6) |
| 45+ | 59.1 (± 1.2) | 50.8 (± 0.5) | 68.9 (± 1.4) | 53.7 (± 0.5) | 73.0 (± 1.4) | 58.9 (± 0.5) |
| Education | | | | | | |
| High school or less | 57.5 (± 1.5) | 43.3 (± 0.5) | 68.5 (± 1.8) | 47.7 (± 0.6) | 73.9 (± 1.5) | 52.7 (± 0.5) |
| Some college | 56.6 (± 1.8) | 46.3 (± 0.6) | 68.8 (± 1.5) | 51.5 (± 0.6) | 75.7 (± 1.7) | 58.1 (± 0.7) |
| College graduate | 63.2 (± 1.9) | 54.9 (± 0.6) | 74.6 (± 1.6) | 60.0 (± 0.6) | 78.8 (± 1.6) | 65.9 (± 0.5) |
| Race/Ethnicity | | | | | | |
| African American | 53.2 (± 4.3) | 47.3 (± 2.4) | 63.2 (± 4.3) | 51.8 (± 1.1) | 69.9 (± 3.8) | 57.4 (± 1.1) |
| Asian | 64.1 (± 3.2) | 57.4 (± 1.8) | 76.5 (± 2.5) | 63.5 (± 2.2) | 77.4 (± 2.9) | 67.6 (± 1.9) |
| Hispanic | 65.5 (± 2.0) | 58.9 (± 1.4) | 74.5 (± 2.2) | 65.8 (± 1.3) | 80.5 (± 1.6) | 68.1 (± 1.0) |
| Non-Hisp White | 55.0 (± 1.3) | 45.0 (± 0.5) | 67.9 (± 1.4) | 49.8 (± 0.5) | 74.1 (± 1.6) | 55.8 (± 0.5) |
| Other | 53.2 (± 11.0) | 46.0 (± 3.4) | 61.1 (± 7.9) | 44.3 (± 3.7) | 65.9 (± 10.4) | 53.6 (± 3.3) |
| Smoke-free workplace | | | | | | |
| Yes | 65.2 (± 1.9) | 54.4 (± 0.6) | 74.4 (± 1.8) | 58.2 (± 0.6) | 81.9 (± 1.4) | 63.4 (± 0.6) |
| No | 52.9 (± 2.1) | 38.7 (± 0.6) | 67.4 (± 2.7) | 41.6 (± 0.9) | 71.4 (± 3.2) | 46.7 (± 0.9) |
| Smoke-free home | | | | | | |
| Yes | 73.0 (± 1.0) | 69.0 (± 0.5) | 80.8 (± 1.0) | 70.4 (± 0.4) | 84.2 (± 0.9) | 72.9 (± 0.5) |
| No | 38.0 (± 1.7) | 31.0 (± 0.4) | 47.5 (± 2.0) | 31.8 (± 0.5) | 52.5 (± 2.0) | 35.1 (± 0.5) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CPS 1992-93, 1995-96, 1998-99

*US REFERS TO SURVEY RESPONDENTS IN OTHER PARTS OF THE US THAN CALIFORNIA.

**HOSPITALS, INDOOR WORK AREAS, INDOOR SPORTING VENUES, INDOOR SHOPPING MALLS, RESTAURANTS, BARS/COCKTAIL LOUNGES

In 1992-1993, both in California and in the rest of the US, there was a direct relation between thinking smoking should not be allowed in four or more venues and educational attainment. However, by 1998-1999, this difference had disappeared in California, but still persisted to about the same degree in the rest of the US. A similar pattern was observed among racial/ethnic groups. In 1992-1993, Asians and Hispanics showed higher levels of support than other racial/ethnic groups for smoke-free venues in both California and the rest of the US. However, by 1998-1999 the racial/ethnic differences were largely absent in California but persisted in the rest of the US.

Table A.6.7 shows the percentages of Californians indicating that smoking should not be allowed in venues where it is currently not prohibited. In general, support for these smoke-free venues was greater among women, Hispanics, and Asians, those with less than a high school education, and those covered by smoking bans in the workplace or in the home. Except for outdoor areas of bars/clubs and college dormitories, young adults were more supportive of smoking restrictions than older adults. Minorities and the lesser educated showed higher levels of support for not allowing smoking in outdoor workplaces.

Table A.6.7
Percentages Stating That Smoking Should Not Be Allowed at Various Venues
not Currently Covered in California by Smoking Restrictions in Demographic Subgroups

| | Outdoor Places / Loading Docks | Outdoor Public Places | Kids' Play Yards/ Fields | Outdoor Restaurant/ Dining Patios | Outdoor Bar/ Club Patron Patios | Just Outside Entrances to Buildings | Common Areas Of Apt / Condo | Common Areas of Hotels/ Motels | Hotel Rooms | Indian Casinos | On-Campus Student Housing |
|-------------------------------------|---|-----------------------------|-----------------------------------|--|--|---|--------------------------------------|---|----------------|-------------------|---------------------------------|
| Overall | 42.7 (±1.2) | 52.3 (±1.2) | 90.5 (±0.6) | 62.5 (±1.1) | 39.7 (±1.2) | 62.7 (±1.2) | 87.1 (±0.8) | 88.8 (±0.5) | 65.7 (±1.2) | 60.1 (±1.2) | 79.2 (±0.7) |
| Gender | | | | | | | | | | | |
| Male | 38.0 (±1.4) | 47.1 (±1.4) | 88.2 (±0.9) | 59.9 (±1.2) | 36.9 (±1.8) | 57.2 (±1.5) | 84.2 (±1.0) | 86.6 (±0.9) | 61.2 (±1.5) | 56.1 (±1.7) | 75.2 (±1.2) |
| Female | 47.2 (±1.9) | 57.4 (±1.8) | 92.6 (±0.9) | 65.0 (±1.6) | 42.5 (±1.7) | 68.0 (±1.4) | 89.9 (±1.1) | 90.8 (±0.9) | 70.0 (±1.5) | 63.9 (±1.5) | 83.0 (±1.0) |
| Age | | | | | | | | | | | |
| 18-21 | 41.1 (±1.9) | 60.7 (±1.7) | 94.2 (±0.8) | 61.6 (±1.7) | 31.5 (±1.6) | 68.2 (±1.6) | 88.0 (±1.1) | 90.6 (±1.0) | 68.2 (±2.2) | 57.2 (±1.8) | 72.7 (±1.9) |
| 22-25 | 43.3 (±1.8) | 57.3 (±2.3) | 93.0 (±1.3) | 59.3 (±2.0) | 32.2 (±2.2) | 66.5 (±2.0) | 88.4 (±1.5) | 89.9 (±1.4) | 65.1 (±2.4) | 58.8 (±2.2) | 74.1 (±1.7) |
| 26-29 | 51.4 (±1.8) | 63.7 (±2.0) | 93.8 (±1.0) | 64.6 (±1.9) | 38.7 (±1.8) | 71.9 (±1.9) | 89.6 (±1.4) | 90.4 (±1.2) | 68.4 (±2.3) | 61.5 (±2.0) | 81.6 (±1.4) |
| 30-44 | 46.4 (±2.0) | 54.8 (±2.1) | 90.8 (±1.2) | 64.5 (±2.0) | 39.6 (±2.1) | 65.3 (±2.1) | 88.5 (±1.1) | 90.1 (±1.2) | 64.8 (±1.9) | 59.7 (±1.9) | 80.3 (±1.3) |
| 45-64 | 42.1 (±2.3) | 48.9 (±2.2) | 88.9 (±1.2) | 63.2 (±2.0) | 43.4 (±2.4) | 60.7 (±2.1) | 87.3 (±1.3) | 89.4 (±1.0) | 64.9 (±1.9) | 61.2 (±2.6) | 81.1 (±1.7) |
| 65+ | 31.1 (±3.3) | 40.2 (±3.6) | 87.6 (±2.0) | 57.3 (±3.9) | 42.2 (±3.7) | 50.7 (±3.8) | 80.9 (±2.7) | 81.9 (±2.5) | 67.2 (±3.4) | 60.6 (±3.7) | 77.9 (±3.1) |
| Race/Ethnicity | | | | | | | | | | | |
| Hispanic | 56.3 (±2.4) | 64.9 (±2.5) | 94.8 (±1.1) | 72.0 (±1.9) | 48.1 (±2.5) | 75.9 (±1.7) | 91.9 (±0.9) | 92.0 (±1.0) | 78.5 (±1.8) | 68.7 (±2.0) | 88.9 (±1.2) |
| Non-Hispanic White | 34.6 (±1.2) | 44.9 (±1.4) | 87.1 (±0.9) | 59.8 (±1.2) | 36.5 (±1.3) | 55.0 (±1.5) | 84.3 (±1.0) | 86.5 (±0.9) | 58.8 (±1.4) | 54.7 (±1.8) | 73.2 (±1.1) |
| African American | 42.9 (±2.5) | 48.2 (±3.1) | 91.8 (±1.7) | 57.2 (±2.9) | 38.7 (±2.4) | 64.4 (±2.4) | 85.0 (±1.8) | 88.4 (±1.7) | 56.5 (±2.9) | 62.1 (±2.4) | 76.6 (±2.4) |
| Asian | 44.8 (±3.4) | 55.5 (±3.7) | 93.1 (±2.2) | 56.6 (±4.2) | 38.0 (±3.8) | 61.9 (±3.7) | 89.5 (±2.5) | 91.6 (±1.8) | 71.4 (±3.7) | 62.2 (±3.7) | 84.0 (±2.6) |
| Other | 36.1 (±7.4) | 47.5 (±8.6) | 89.6 (±3.3) | 50.9 (±6.8) | 24.1 (±5.4) | 61.4 (±7.6) | 81.9 (±5.9) | 83.3 (±5.7) | 50.2 (±7.5) | 53.5 (±7.6) | 69.8 (±6.8) |
| Education | | | | | | | | | | | |
| <12 | 60.2 (±3.2) | 65.3 (±3.3) | 94.9 (±1.7) | 75.0 (±3.2) | 54.0 (±3.7) | 77.9 (±2.8) | 89.9 (±2.2) | 89.3 (±2.4) | 78.4 (±2.9) | 71.0 (±2.9) | 90.8 (±2.3) |
| 12 | 36.9 (±2.4) | 47.7 (±2.5) | 89.8 (±1.3) | 57.5 (±2.4) | 34.6 (±2.3) | 59.1 (±2.0) | 84.1 (±1.4) | 86.7 (±1.2) | 63.3 (±2.2) | 56.8 (±2.0) | 76.2 (±2.1) |
| 13-15 | 37.1 (±2.2) | 49.2 (±1.8) | 89.1 (±1.1) | 57.5 (±1.7) | 34.5 (±1.8) | 60.7 (±2.1) | 85.9 (±1.1) | 88.2 (±1.1) | 62.8 (±1.6) | 59.0 (±1.7) | 75.7 (±1.5) |
| 16+ | 43.4 (±2.1) | 52.3 (±2.4) | 89.9 (±1.2) | 64.6 (±1.8) | 41.3 (±2.1) | 59.8 (±2.0) | 89.4 (±1.2) | 90.7 (±1.1) | 63.8 (±2.1) | 58.2 (±2.3) | 78.7 (±1.6) |
| Work in Smoke-free Workplace | | | | | | | | | | | |
| Banned at Work | 46.3 (±1.6) | 54.2 (±1.6) | 90.8 (±1.1) | 63.7 (±1.6) | 39.7 (±1.5) | 65.1 (±1.6) | 89.5 (±0.9) | 90.7 (±0.8) | 65.5 (±1.3) | 61.8 (±1.4) | 79.0 (±1.2) |
| Not Banned at Work | 42.9 (±9.0) | 51.8 (±10.6) | 87.3 (±5.7) | 62.2 (±8.9) | 34.8 (±9.0) | 55.4 (±8.5) | 85.9 (±5.4) | 85.8 (±6.3) | 59.7 (±8.9) | 60.8 (±9.6) | 78.6 (±6.7) |
| Live in Smoke-free Home | | | | | | | | | | | |
| Banned at Home | 47.0 (±1.4) | 57.3 (±1.3) | 92.7 (±0.7) | 68.4 (±1.3) | 44.6 (±1.5) | 67.3 (±1.3) | 91.0 (±0.8) | 92.5 (±0.6) | 70.9 (±1.5) | 64.8 (±1.5) | 83.8 (±0.8) |
| Not Banned at Home | 29.7 (±2.2) | 37.3 (±2.3) | 83.7 (±1.4) | 44.7 (±2.3) | 25.0 (±1.9) | 48.9 (±2.1) | 75.3 (±2.1) | 77.4 (±1.9) | 49.8 (±2.1) | 45.8 (±2.0) | 65.1 (±2.3) |
| Smoking Status | | | | | | | | | | | |
| Never Smoker | 50.9 (±1.7) | 60.8 (±1.7) | 93.0 (±0.9) | 69.9 (±1.6) | 46.8 (±1.8) | 69.8 (±1.6) | 91.6 (±0.8) | 92.6 (±0.7) | 74.2 (±1.5) | 66.6 (±1.6) | 85.6 (±1.0) |
| Former Smoker | 35.0 (±2.2) | 46.4 (±1.9) | 88.8 (±1.1) | 60.2 (±1.8) | 37.2 (±1.9) | 56.4 (±2.2) | 84.6 (±2.0) | 86.4 (±1.6) | 61.3 (±2.4) | 60.1 (±2.5) | 75.9 (±1.9) |
| Some Days Smoker | 28.7 (±3.9) | 39.1 (±3.4) | 87.5 (±2.6) | 46.1 (±3.8) | 19.7 (±3.0) | 53.9 (±3.3) | 81.0 (±3.4) | 83.1 (±2.7) | 50.2 (±3.4) | 41.3 (±3.3) | 65.8 (±2.9) |
| Everyday Smoker | 19.8 (±1.6) | 24.1 (±1.6) | 81.1 (±1.6) | 33.2 (±2.2) | 14.4 (±1.6) | 41.1 (±1.8) | 70.8 (±1.9) | 75.0 (±1.7) | 34.6 (±1.7) | 31.8 (±1.7) | 56.5 (±2.3) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 2002

GLOSSARY

Adults

Current smoker – has smoked at least 100 cigarettes in his or her lifetime and smokes now (old question) or now either everyday or some days (new question) at the time of the survey.

Ever smoker – has smoked at least 100 cigarettes in lifetime.

Former smoker – has smoked at least 100 cigarettes in lifetime, but does not smoke now (old question) or now smokes not at all (new question).

Never smoker – has smoked fewer than 100 cigarettes in his or her lifetime.

Nonsmoker – a *never smoker* or a *former smoker*.

REFERENCES

- California Environmental Protection Agency (CalEPA). *Health Effects of Exposure to Environmental Tobacco Smoke. Final Report*. Office of Environmental Health Hazard Assessment; **1997**.
- Farkas AJ, Gilpin EA, Distefan JM, Pierce JP. The effects of household and workplace smoking restrictions on quitting behaviors. *Tob Control*. **1999**;8:261-265.
- Farkas AJ, Gilpin EA, White MM, Pierce JP. Association between household and workplace smoking restrictions and adolescent smoking. *JAMA*. **2000**;284:717-722.
- Gilpin EA, White MM, Berry CC. *Technical Report on Analytic Methods and Approaches Used in the 2002 California Tobacco Survey Analysis. Vol 3: Methods used for Final Report-Tobacco Control Success in California: A Focus on Young People*. La Jolla, CA: University of California, San Diego; **2004**.
- Gilpin EA, White MM, Farkas AJ, Pierce JP. Home smoking restrictions: Which smokers have them and how they are associated with smoking behavior. *Nic Tob Res*. **1999**;1:153-162.
- MacDonald HR & Glantz S. Political realities of statewide smoking legislation: the passage of California's Assembly Bill 13. *Tob Control*. **1997**;6(1): 41-54.
- National Cancer Institute.(NCI). *Health Effects of Exposure to Environmental Tobacco Smoke. The Report of the California Environmental Protection Agency. Smoking and Tobacco Control Monograph 10*. Bethesda, MD: U. S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute, NIH Pub. No. 99-4645; **1999**.
- US Environmental Protection Agency (US EPA). *Respiratory Health Effects of Passive Smoking: Lung Cancer and Other Disorders*. Washington, DC: Office of Research and Development and Office of Air and Radiation. Publication No. EPA/600/6-90-006F; **1992**.

TOBACCO CONTROL SUCCESSES IN CALIFORNIA:
A FOCUS ON YOUNG PEOPLE

Chapter 7

Adolescent Smoking Behavior

| | |
|--|-------------|
| KEY FINDINGS | 7-2 |
| Introduction | 7-3 |
| 1. Trends in Key Measures of Smoking Behavior by Age | 7-4 |
| 2. Trends in Never Smokers at Lowest Risk of Starting to Smoke | 7-7 |
| The Earliest Stages of the Smoking Uptake Process | 7-7 |
| Trends in Committed Never Smokers Who Have Never Been Curious About Smoking | 7-8 |
| 3. Quitting Among Adolescent Established Smokers | 7-9 |
| 4. Potential Psychosocial Causes for the Substantial Decrease in Adolescent Smoking | 7-11 |
| Trends in Never Smokers' Exposure to Best Friends Who Smoke | 7-12 |
| Never Smokers' Perceptions of Peer Norms About Smoking | 7-13 |
| Parental Attitudes Toward Adolescent Smoking Behavior | 7-14 |
| Trends in Beliefs in Benefits to Smoking | 7-16 |
| Trends in Beliefs that Should Reduce the Likelihood of Adolescent Smoking Initiation | 7-17 |
| Perceptions About the Utility of Nicotine Replacement Therapy for Smoking Cessation | 7-18 |
| Personal Attitudes Against Smoking and Smokers | 7-19 |
| 5. Summary | 7-21 |
| APPENDIX | 7-23 |
| 1. Demographic Trends in California Adolescents for Key Measures of Smoking Behavior | 7-23 |
| 2. Demographic Trends in Important Psychosocial Predictors of Adolescent Smoking | 7-27 |
| GLOSSARY | 7-29 |
| REFERENCES | 7-30 |

Chapter

7

KEY FINDINGS

Adolescent Smoking Behavior

- 1) The percentage of 12- to 13-year-olds who reported ever smoking has declined since the start of the California Tobacco Program.** Between 1990 and 1996, ever smoking rates declined consistently at a rate of 0.7% per year, and this rate doubled to 1.5% per year between 1996 and 2002. In 2002, only 5.6% reported having smoked, a factor decline of 70% from 1990.
- 2) Among 14- to 15-year-olds, the decline in ever smoking did not start until after 1996.** Between 1996 and 2002, reported ever smoking among 14- to 15-year-olds declined at a rate of 2.9% per year to 18.4% in 2002, a factor decline of 48.2% since 1996.
- 3) Among 16- to 17-year-olds, ever smoking decreased after 1996 at a rate similar to that of other adolescents (3.0% per year),** so that by 2002, 35.1% reported having smoked, a factor decline of 33.6%.
- 4) The percentage of established adolescent smokers (smoked at least 100 cigarettes in lifetime) started to decline after 1996.** Among 16- to 17-year-olds, this percentage declined by a factor of 59.3% between 1996 and 2002, reaching a low of 6.1% in this age group.
- 5) The percentage of California adolescents considered at very low risk for starting to smoke (committed never smokers who definitely had never been curious about smoking) is increasing, particularly among 12- to 13-year-olds.** In 2002, 37.9% of 12- to 13-year-olds, 29.8% of 14- to 15-year-olds, and 28.3% of 16- to 17-year-olds were at very low risk. However, the majority of California adolescents appeared still vulnerable to start smoking or had already started.
- 6) The quitting behavior of adolescents remained stable between 1990 and 2002.** In 2002, 17.6% of established smokers were former smokers, but only 4.4% remained abstinent for over a year (successful quitters). Among established smokers, 71.9% reported an unsuccessful quit attempt in the past year.
- 7) Pharmaceutical advertising of nicotine replacement products may contribute to adolescent never smokers' beliefs that they could quit easily if they started to smoke.**
- 8) Trends in important psychosocial antecedents of adolescent smoking either were of small magnitude or inconsistent with the changes in key measures of adolescent smoking uptake.** Thus, structural changes brought about by the California Tobacco Control Program, particularly after 1996 when such efforts were intensified, may be responsible for the unprecedented and abrupt changes in adolescent smoking behavior observed between 1996 and 2002.

Adolescent Smoking Behavior

Introduction

A major goal of the California Tobacco Control Program is to reduce smoking uptake among adolescents (TEROC, 1991, 2000). For many people who smoke a first cigarette as an adolescent, a period of experimentation can lead to decades of addicted smoking (Pierce & Gilpin, 1996), with successful, long-term cessation difficult to achieve (USDHHS, 1988).

It has been recognized for many years that the first steps in the process of becoming a smoker often start in the pre-adolescent years, when some children develop cognitions favorable to experimentation (Flay & Sobel, 1983, USDHHS, 1994). They become curious about smoking and will no longer rule out the possibility of accepting a cigarette if it is offered to them (Pierce et al., 1996). However, the situation in which they smoke their first cigarette may occur years after their cognitions put them at high risk of experimenting.

For many adolescents, the first experience with smoking involves just a few puffs on someone else's cigarette (Flay & Sobel, 1983; USDHHS, 1994). Although some people don't progress beyond this puffing stage (Choi et al., 2002), most progress to smoke a whole cigarette. Currently, there is considerable research interest regarding how adolescents respond to their first cigarette (Riedel et al., 2003), with many believing that a high percentage of adolescents may be biologically vulnerable to becoming addicted—in other words, a particular physiological response to first use may be strongly associated with continued use. Initially, smoking in adolescence is sporadic (e.g., limited to parties and unmonitored social settings). However, as lifetime exposure increases, the probability that an adolescent will become a dependent smoker increases.

Some researchers have suggested that the critical number of cigarettes needed before an experimenter will become dependent may be as few as four (Russell, 1990; Hahn et al., 1990). The more conservative and commonly used critical number is 100 cigarettes in a lifetime, after which people are classified as established smokers with many probably having a cigarette smoking dependency (Pierce et al., 1998). There is considerable evidence that people who have smoked as few as 100 cigarettes have already started to make repeated unsuccessful quit attempts—one of the criteria for diagnosing dependence (Pierce et al., 1998). Most of those who reach 100 cigarettes continue to increase their consumption and eventually start smoking on a daily basis. Average cigarette consumption continues to increase through the young adult years before a stable level is reached. Historically, in the United States, this stable daily consumption level has averaged approximately 20 cigarettes (USDHHS, 1989). However, over the last 10 years, the stable level among California smokers has been decreasing (Gilpin & Pierce, 2002).

There is an age window during which people are more likely to be in the smoking uptake process. National and California data suggest that the first step in the uptake process (the development of high-risk cognitions among never smokers) starts before age 10 (Choi et al., 2001). The majority of first experimentation with cigarettes appears to occur before the age 18 years, with a large percentage progressing to established smokers before age 21 years (Gilpin et al., 1999).

This chapter focuses on 12- to 17-year-olds, an age group that has been surveyed in each California Tobacco Survey (CTS) since 1990. As this age range corresponds to the early part of the smoking uptake window, Section 1 of this chapter examines trends in experimentation and the percentages of experimenters who had transitioned to become established smokers by age. As a goal of the California Tobacco Control Program is to prevent uptake, Section 2 reviews trends in the percentage of never smokers who are at the lowest risk to start smoking. Section 3 explores quitting among established smokers. Section 4 focuses on evidence that the observed changes in smoking behavior may have had psychosocial antecedents. Several theories suggest that an individual's perceptions of the benefits and costs of smoking will be the most important determinant of performance of that behavior (Bandura, 1986; Ajzen & Fishbein, 1980; Prochaska & DiClemente, 1983). One source of information that influences these beliefs comes from the adolescents' social environment — best friends or family members who smoke. This section presents the trends in these and other psychosocial variables. Finally, Section 5 summarizes the results and conclusions presented in this chapter.

1. Trends in Key Measures of Smoking Behavior by Age

In the CTS, adolescents are first asked the following question and a positive response is used to classify them as having experimented with cigarettes:

Have you ever smoked a cigarette?

All adolescents who respond negatively to this question are probed further and a positive response to the following question classifies them as a puffer.

Have you ever tried or experimented with smoking, even a few puffs?

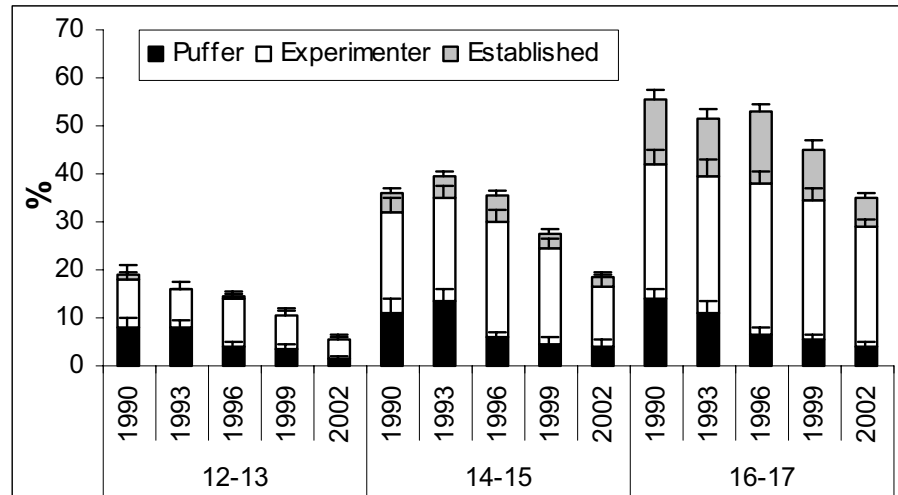
This Chapter defines an **ever smoker** as a person who has either smoked a cigarette or has puffed on one.

All experimenters (not puffers) were asked the following question and classified as an established smoker if they answered yes:

Have you smoked at least 100 cigarettes in your life?

The trends in the percentages of adolescents who were puffers, experimenters, and who had already progressed to established smoking are presented by age in **Figure 7.1**. The exact percentages of ever smokers (experimenters, puffers, and established smokers) for each age group in each survey year are presented in **Table 7.1**. Also, Appendix Tables A.7.1, A.7.2 and A.7.3 show the results in demographic groups of adolescents.

Figure 7.1: Trends in Percentages of Puffers, Experimenters, and Established Smokers by Age Group



SOURCE: CTS 1990, 1993, 1996, 1999, 2002

| Table 7.1 Trends in Percentages of Puffers, Experimenters, Established Smokers, and Ever Smokers by Age | | | | | |
|--|------|-----------------------|-----------------|------------|----------------------|
| Age Group | Year | Established Smokers % | Experimenters % | Puffers % | Total Ever Smokers % |
| 12-13 | | | | | |
| | 1990 | 0.6(±0.6) | 10.3(±2.6) | 7.9(±2.2) | 18.9(±2.7) |
| | 1993 | 0.2(±0.1) | 8.1(±1.6) | 7.8(±1.6) | 16.1(±2.2) |
| | 1996 | 0.6(±0.3) | 9.9(±1.6) | 4.1(±0.9) | 14.6(±1.9) |
| | 1999 | 0.2(±0.6) | 7.1(±1.4) | 3.4(±1.1) | 10.7(±1.7) |
| | 2002 | 0.1(±0.1) | 4.0(±1.1) | 1.6(±0.6) | 5.6(±1.1) |
| 14-15 | | | | | |
| | 1990 | 3.8(±1.1) | 21.1(±2.7) | 11.0(±2.8) | 35.9(±3.6) |
| | 1993 | 4.3(±1.2) | 21.4(±2.6) | 13.7(±2.4) | 39.3(±3.0) |
| | 1996 | 5.4(±1.1) | 24.0(±2.3) | 6.0(±1.1) | 35.5(±2.2) |
| | 1999 | 2.8(±1.1) | 19.9(±2.0) | 4.7(±1.1) | 27.3(±2.1) |
| | 2002 | 1.7(±0.7) | 12.5(±1.8) | 4.2(±1.1) | 18.4(±2.2) |
| 16-17 | | | | | |
| | 1990 | 13.4(±2.2) | 28.3(±3.1) | 13.8(±2.0) | 55.4(±2.6) |
| | 1993 | 12.0(±2.2) | 28.3(±3.6) | 11.5(±2.2) | 51.8(±3.4) |
| | 1996 | 15.0(±1.7) | 31.5(±2.4) | 6.5(±1.3) | 52.9(±2.6) |
| | 1999 | 10.3(±2.2) | 29.0(±2.5) | 5.5(±1.2) | 44.7(±2.7) |
| | 2002 | 6.1(±1.0) | 24.9(±1.8) | 4.0(±1.0) | 35.1(±1.9) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1993, 1996, 1999, 2002

Since the start of the California Tobacco Program, the percentage of 12- to 13-year-olds who reported ever smoking has declined consistently. The 2002 level (5.6) was lower by a factor of 70% than in 1990.

Between 1990 and 2002, the CTS found a major decline in smoking among 12- to 13-year-olds. In 1990, $18.9 \pm 2.7\%$ of this age group had ever smoked, and this percentage declined by 0.7% per year until 1996 when the level was $14.6 \pm 1.9\%$. By 2002, only $5.6 \pm 1.1\%$ of this age group were ever smokers, a decline by a factor of 47.7% from 1999, and by a factor of 70.4% from the level in 1990. Between 1996 and 2002, ever smoking rates declined at 1.5% per year. Of particular note is that the percentage in this age group who had only puffed on a cigarette had declined to just $1.6 \pm 0.6\%$. As expected, virtually no respondents of this youngest age group were classified as established smokers in any survey year.

Among 14- to 15-year-olds, 35 to 40% reported that they had ever smoked in the 1990 to 1996 surveys. Between 1996 and 2002, ever smoking declined markedly for this age group by 2.9% per year, to $27.3 \pm 2.1\%$ in 1999 and then to $18.4 \pm 2.2\%$ in 2002. Thus, by 2002, the ever-smoking rate in this age group was only about half the rate in 1990. The percentage of adolescents in this age group who had only puffed on a cigarette also decreased from $11.0 \pm 2.8\%$ in 1990 to $4.2 \pm 1.1\%$ in 2002. As expected, the percentage in

Among the older age groups (14-15 and 16-17 years), the decline in ever smoking and established smoking did not start until after 1996, but then it occurred rapidly.

this age group who had already progressed to become established smokers was small. Between 1990 and 1996, it was approximately 4%. By 2002, it was $1.7 \pm 0.7\%$, or less than half of the level of the early 1990s.

Among 16- to 17-year-olds, the peak percentage reporting ever smoking occurred in 1990 at $55.4 \pm 2.6\%$, and there was no significant decline in this percentage through 1996. After 1996, the percentage of ever smokers declined rapidly by 3.0% per year to $44.7 \pm 2.7\%$ in 1999 and then to $35.1 \pm 1.9\%$ in 2002, a decline by a factor of 33.6% since 1996. Prior to 1996, there was no observable

trend in the percentage of this age group who were already established smokers, with the highest estimate at $15.0 \pm 1.7\%$ in 1996. As with the other indices of smoking behavior, after 1996 the rate of established smoking declined markedly, first to $10.3 \pm 2.2\%$ in 1999 and then to $6.1 \pm 1.0\%$ in 2002, a reduction by a factor of 59.3% since 1996.

Previous research suggests that about 30% of experimenters will progress to established smoking in 3 years and that the percentage may be as high as 50% in the longer term (Choi et al., 1997; Gilpin et al., 1999). In 1990, the percentage of 16- to 17-year-old ever smokers who had already progressed to established smoking was $24.2 \pm 3.8\%$. This percentage increased to $28.4 \pm 3.1\%$ by 1996, suggesting that the high adolescent smoking prevalence rate observed that year (see Chapter 2) might have been the result of increased progression among those who had already smoked rather than an increase in the rate of ever smoking. In 1999, the percentage of ever smokers who had progressed to established smoking had decreased to $23.1 \pm 3.1\%$, and by 2002 it had decreased further to $17.4 \pm 2.8\%$.

The above results indicate that there has been an unprecedented reduction in ever smoking among California adolescents as well as a marked reduction in the rate of progression of ever smokers to established smoking, two key indicators of smoking uptake. The

reduction in ever smoking in the youngest age groups occurred each year across the entire period, whereas the reduction among 14- to 17-year-olds did not start until after 1996, with the largest decline occurring between 1999 and 2002.

The lag in the decline for older age groups suggests that the preventive effect may have been particularly strong in the younger adolescents, many of whom likely remained never smokers as they grew older. However, the lower rates of established smoking in recent years could also be due to delayed uptake, or prolongation of the smoking uptake process beyond age 17 years. Alternatively, it may be that the percentage of experimenters who progressed to established smoking has decreased markedly. An evaluation of these alternatives awaits future California Tobacco Surveys, when these adolescent age groups will be surveyed as young adults.

2. Trends in Never Smokers at Lowest Risk of Starting to Smoke

This section defines a group of adolescents at lowest risk for future smoking, and presents trends in the percentage of the adolescent population classified in this category.

The Earliest Stages of the Smoking Uptake Process

A number of longitudinal studies have validated “susceptible” never smokers as having about twice the likelihood of experimenting in the future as “committed” never smokers. This categorization uses intention-to-smoke and self-efficacy questions (Pierce et al., 1996; Choi et al., 2001; Jackson, 1998; Gritz et al., 2003). The following three questions were used for this classification in the CTS:

Do you think in the future you might experiment with cigarettes?

If one of your best friends were to offer you a cigarette, would you smoke it?

At any time during the next year do you think you will smoke a cigarette?

Response categories were “definitely yes,” “probably yes,” “probably not,” or “definitely not.” Only adolescents who answered “definitely not” to all three questions were categorized as **committed** never smokers. All other never smokers were called **susceptible** never smokers.

In addition to these high-risk cognitions, a number of studies have reported that curiosity about smoking is one of the most common reasons that smokers give for starting to smoke (Cronan et al., 1991; De Micheli & Formigoni, 2002; Plummer et al., 2001). Indeed, advertising theory indicates that persuasive efforts to promote experimentation should focus on the benefits of the product and aim to make the non-user curious about it (Smith & Swinyard, 1988). In the CTS, committed never smokers were further categorized into two groups based on their response to the question:

Have you ever been curious about smoking a cigarette?

Again, the response categories were “definitely yes,” “probably yes,” “probably not,” or “definitely not.” Adolescents who answered “definitely not” were categorized as *never curious* committed never smokers. All other committed never smokers were *curious* committed never smokers.

Table 7.2 presents the evidence from separately-funded follow-up surveys of adolescents first identified in the 1996 CTS. Adolescents who were 12 to 15 years of age at the time of the 1996 CTS were re-interviewed in 1999 when they were 15 to 18 years of age and again in 2002 when they were 18 to 21 years of age. Overall, within 3 years (1999), about 40% of the susceptible never smokers at baseline in 1996 had smoked, and over half reported having smoked within 6 years (2002). Of those who were committed never smokers who had never been curious about smoking at baseline, under 20% had smoked within 3 years and under 30% had smoked within 6 years. These levels of ever smoking were much lower than those for committed never smokers who had been curious about smoking. However, while never curious committed never smokers represent the lowest risk group of adolescents that we can currently identify, it is clear that this group is not immune to future influences encouraging them to smoke.

| Table 7.2 | | | |
|--|--------------------------------|-------------------------|-------------------------|
| Risk of Future Smoking Among 12- to 15-Year-Old Never Smokers | | | |
| Smoking Status | Curiosity About Smoking | Ever Smoking | |
| | | Within 3 Years % | Within 6 Years % |
| Committed never smoker | Never curious | 18.0 (±3.6) | 29.3 (±4.8) |
| Committed never smoker | Have been curious | 27.9 (±6.1) | 46.1 (±10.8) |
| Susceptible never smoker | | 39.1 (±3.7) | 53.6 (±4.8) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1996 RWJ FOLLOW-UPS OF 1999, 2002

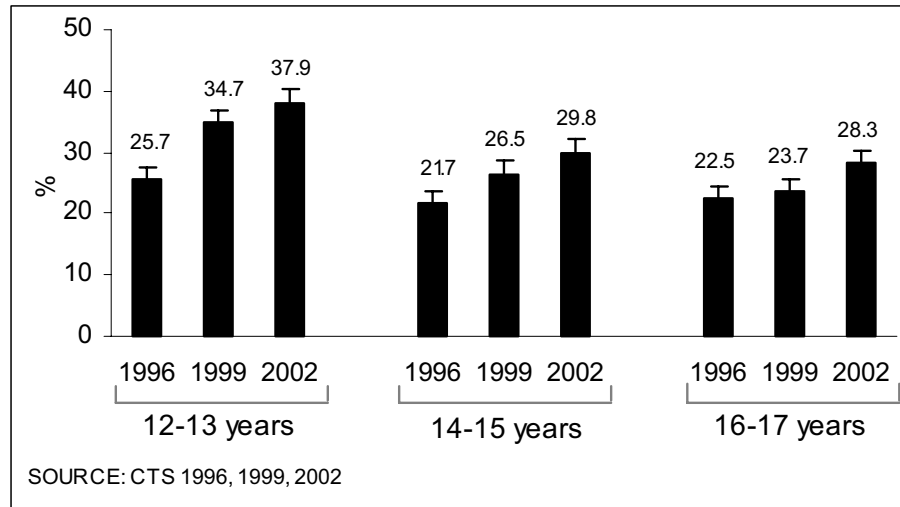
Trends in Committed Never Smokers Who Have Never Been Curious About Smoking

As the curiosity question was first asked in 1996, trends in the percentage of California adolescents at lowest risk for smoking (committed never smokers who had never been curious about smoking) are limited to 1996-2002 and are presented in **Figure 7.2**. In 1996, only one quarter of 12- to 13-year-olds were in this lowest risk category for future smoking. This percentage increased significantly by 1999 and again by 2002, a factor increase of 47.5% since 1996. Among 14- to 15-year-olds, in 1996, about 20% were in this lowest risk category. In 1999, this percentage increased to about 25%, and by 2002 it had increased to about 30%, an increase by a factor of 37.3% since 1996. Among 16- to 17-year-olds, 22-24% were in this lowest risk category in 1996 and 1999. However, by 2002, this percentage increased significantly to 28.3±2.1%, by a factor of 25.8% since 1996. Note that the younger age groups showed larger increases over this period than the oldest, despite having higher levels initially. This suggests that there was a major decline in the influences encouraging the youngest adolescents to be curious about smoking starting around 1996.

Adolescents who are committed never smokers who had never been curious about smoking are an increasing fraction of the population, particularly in younger age groups.

Even though the percentage of adolescent committed never smokers who have never been curious about smoking has increased since 1996, particularly in the youngest age group, most California adolescents have moved beyond this category and are at higher risk for becoming adult smokers. Thus, although there have been remarkable declines in adolescent ever smoking, the majority of adolescents is still vulnerable to start smoking.

Figure 7.2: Trends in the Percentage of Adolescents at Lowest Risk to Start Smoking



Appendix Table A.7.4 shows the percentages of adolescent committed never smokers who have never been curious about smoking in demographic subgroups.

3. Quitting Among Adolescent Established Smokers

As noted earlier, a previous report (Pierce et al., 1998) presented evidence indicating that 100 cigarettes in a lifetime is a good early marker of which adolescents are dependent on nicotine. Therefore, the analyses of smoking cessation were restricted to adolescent established smokers. The following questions in the CTS focused on recent quitting history:

Think about the last 30 days. On how many of these days did you smoke?

Any smoking (an answer other than zero or none) in the past month characterized an individual as a current smoker. Former smokers (zero or none) were asked:

How long ago did you smoke your last cigarette?

Respondents could answer in months or years.

All current adolescent smokers were asked to answer yes or no to the question:

Have you ever seriously thought about quitting smoking?

Starting in the 1996 survey, all those who responded positively were asked the following:

When was your most recent attempt to quit?

Respondents were asked to provide both a month and year.

Since evidence suggests that the risk of relapse is not minimal until former smokers have been quit for at least 12 months (Hughes et al., 2003; Gilpin et al., 1997; Pierce & Gilpin, 2003), the above questions were used to divide established smokers in the 1996 to 2002 surveys into five groups: (1) successful quitters (quit > 1 year), (2) former smokers who had quit in the past year, (3) current smokers who had never thought about quitting, (4) current smokers who had thought about quitting but who had not made a quit attempt in the past year, and (5) current smokers with a quit attempt in the past year. Note that a few current smokers indicated that they had smoked 100+ cigarettes but, when asked about quitting, indicated that they had never smoked regularly. These represented 1.0±1.2% of all established smokers in 2002 and there was no significant trend over time. These respondents were excluded from the analysis.

Table 7.3 presents the full quitting history of 14- to-17-year-old established smokers from the 1996 to 2002 CTS and the categories available from the 1990 and 1993 CTS. The percentages in the table are of all established smokers.

| Table 7.3 Quitting Behavior among 14- to -17-Year-Old Established Smokers | | | | | | | | | | |
|--|---------------|-------------|---------------|-------------|----------------|-------------|---------------|-------------|---------------|-------------|
| | 1990 N=368 | | 1993 N=304 | | 1996 N= 419 | | 1999 N=290 | | 2002 N=167 | |
| | N | %* | N | % | N | % | N | % | N | % |
| Former Smokers | 72 | 24.4 (±2.7) | 44 | 17.4 (±5.7) | 74 | 15.6 (±7.7) | 57 | 20.4 (±5.7) | 37 | 17.6 (±6.1) |
| Did not smoke in last year | | | 14 | 7.0 (±2.1) | 14 | 3.3 (±1.5) | 21 | 6.4 (±2.9) | 12 | 4.4 (±2.9) |
| Smoked in last year | | | 30 | 10.4 (±4.5) | 60 | 12.3 (±3.1) | 36 | 14.0 (±6.1) | 25 | 13.2 (±5.7) |
| Current Smokers | 296 | 75.6 (±2.7) | 260 | 82.6 (±5.7) | 345 | 84.4 (±3.6) | 233 | 79.6 (±5.7) | 130 | 82.4 (±6.1) |
| Did not attempt in last year and did not think of attempting to quit | | | | | 55 | 13.3 (±3.5) | 31 | 11.8 (±4.6) | 15 | 7.8 (±4.4) |
| Thought about quitting, but did not attempt in last year | | | | | 9 | 1.7 (±1.2) | 8 | 2.6 (±1.8) | 5 | 2.7 (±2.6) |
| Attempted to quit in last year | | | | | 281 | 69.3 (±4.4) | 194 | 65.2 (±6.8) | 110 | 71.9 (±7.7) |

*Percentages are weighted percentages of all established smokers 14-17 years of age.

SOURCE: CTS 1990, 1993, 1996, 1999, 2002

There was no evidence of improvement in any aspect of quitting among 14- to 17-year-old established smokers.

In 1990, $24.4 \pm 2.7\%$ of established adolescent smokers aged 14 to 17 years had not smoked in the past month and were classified as former smokers. This percentage did not change substantially in any later surveys; in 2002, $17.6 \pm 6.1\%$ were in this category. Between 1996 and 2002, there was no difference in the percentage of established smokers who had successfully quit smoking for one year. In 2002, the percentage of established smokers who had successfully quit for a year or more was a low $4.4 \pm 2.8\%$.

In 2002, $71.9 \pm 7.7\%$ of all established smokers reported that they had made a quit attempt in the past year. This was not significantly different from the rate in either 1996 or 1999. Considering just the established smokers who had smoked in the past year, $74.4 \pm 7.8\%$ made a quit attempt. While the estimate of the number of established smokers who had never thought about quitting appeared to decrease from $11.8 \pm 4.6\%$ in 1999 to $7.8 \pm 4.4\%$ in 2002, this difference was not significant.

Thus, these data indicate that adolescent established smokers are considerably interested in quitting, with a large percentage trying to quit in any given year. However, few established smokers are in the category of successful former smokers. Declining prevalence is, therefore, from reduced initiation.

4. Potential Psychosocial Causes for the Substantial Decrease in Adolescent Smoking

Large declines in adolescent smoking behavior, particularly after 1996, were documented earlier in this chapter. To understand why these abrupt declines occurred, it is important to examine theories about how healthy behaviors are brought about. A recent Institute of Medicine (IOM) report identifies two theoretical approaches for achieving health-related behavioral changes (IOM, 2001). The first involves psychosocial theories focused on individuals and their immediate families. These theories suggest that a person's beliefs, expectations, attitudes and knowledge, mediated through intention and self-efficacy, are the main determinants of whether or not people will perform a particular behavior such as smoking (USDHHS, 1994; Bandura, 1977, 1986; Ajzen & Fishbein, 1980; Prochaska & DiClemente, 1983). For smoking uptake, key factors are the individuals' expectations of benefits (health and social) and potential problems related to smoking, perceived parental values related to smoking, and exposure to information and modeling from smokers within the social network.

A second approach outlined in the IOM report is modeled on interventions targeted at organizations and communities. These theories propose that population change is better achieved through changes in a society's "structural" rules relating to a behavior rather than focusing on psychosocial antecedents for the behavior. For example, population changes in smoking uptake would be expected if society made it much more difficult for adolescents to obtain cigarettes (access and price), if it drastically changed the rules about where individuals could smoke cigarettes, if it mounted an aggressive anti-tobacco media campaign, and if it limited the rights of tobacco companies to advertise and promote

smoking to adolescents. In this model, an individual's vulnerability to smoking might not be changed during the uptake window, but the opportunities and temptations to start would be severely curtailed.

Discussions of changes in the "structural" rules relating to smoking are presented in other chapters of this report (see Chapters 6, 9, 10, 11, and 12). In this section, the focus is on whether important psychosocial antecedents of smoking behavior have changed in a direction and magnitude that might explain the unprecedented and sudden changes in adolescent smoking behavior observed recently in California. It would be expected that gradual changes in psychosocial factors would lead to gradual changes in smoking behavior. In order for these psychosocial antecedents to be considered the primary reason for the changes in smoking behavior, they should exhibit similar large and abrupt changes over the survey period that either precede the behavioral change or are evident as the changes in behavior occurred.

Trends in Never Smokers' Exposure to Best Friends Who Smoke

Many studies have shown the association between exposure of never smokers to best friends who smoke and later initiation of smoking. While it is commonly perceived that the causal pathway is strong, it is rare that these studies have investigated the circumstances by which the never smoking adolescent acquired a best friend who smokes. There is considerable evidence that friendship groups can change a number of times during the adolescent years (Steinberg, 1996). Should a never smoking adolescent seek out friends who smoke because they are curious about smoking, then the friends would not be the causal reason that such never smokers initiated smoking. Regardless of the direction of causality, psychosocial theories would predict that changes in the number of never smokers exposed to best friends who smoke should correlate well with changes in initiation behavior.

The CTS asked the following questions to elicit exposure to best friends who smoke:

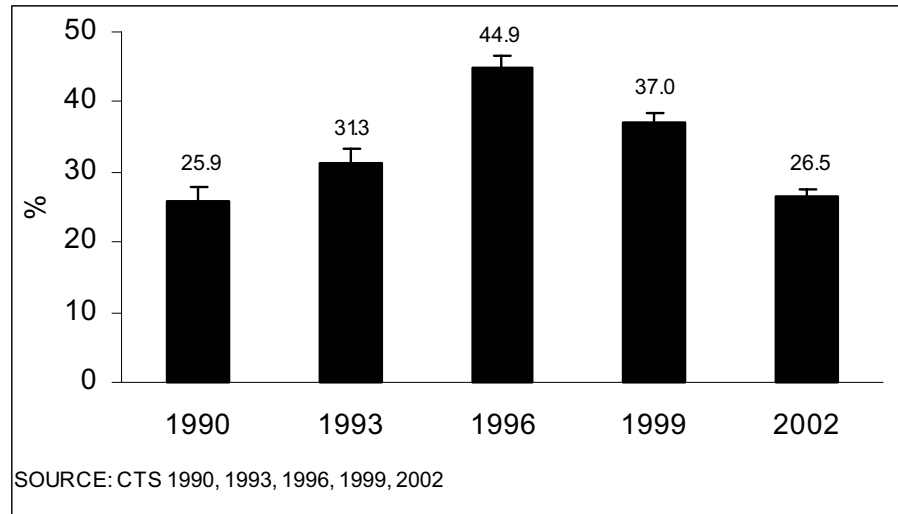
Of your four best male friends, how many of them smoke?

Of your four best female friends, how many of them smoke?

Never smokers' reports of best friends who smoke varied from 26% to 45% between 1990 and 2002, and appeared to reflect smoking prevalence.

Figure 7.3 presents the percentages of never smokers who reported having at least one best friend (of either gender) who smoked. In 1990, about one-quarter of never smoking adolescents reported having a best friend who smoked. In 1993, this percentage had increased to nearly one-third, and by 1996 it had increased again to nearly 45%. By 1999, the percentage had declined to just over one-third of never smokers, and by 2002 it declined back to about one-quarter, not different from the 1990 level.

Figure 7.3: Trends in Adolescent Never Smokers' Exposure to Best Friends Who Smoke



Thus, it would appear that this measure of exposure to peer smoking showed considerable change that reflected, to some extent, overall adolescent smoking prevalence trends over this period (see Chapter 2). The fewer adolescents that smoke, the fewer will say they have friends who smoke. However, since prevalence was much lower in 2002 than in 1990, it would be expected that fewer adolescents would report that their best friends smoked in 2002.

Never Smokers' Perceptions of Peer Norms About Smoking

There is considerable evidence that a person's normative expectations are associated with future smoking behavior (USDHHS, 1994). The CTS asked the following questions to elicit adolescent perception of peer group norms:

Do you think people your age care about staying off cigarettes?

If the response was yes, adolescents were further probed:

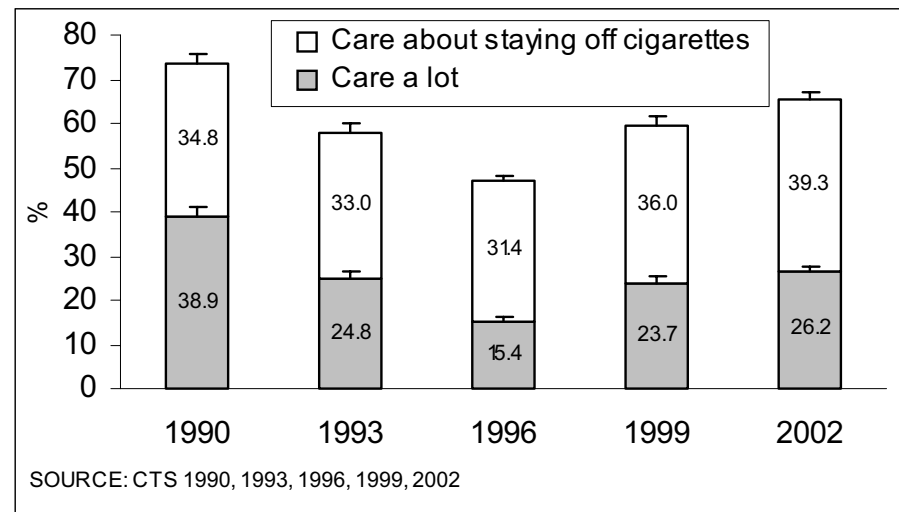
Would you say, they care a lot, somewhat or just a little?

Changes in never smokers' perceptions that peers care about staying off cigarettes appear more correlated with smoking prevalence than initiation, particularly after 1996.

Figure 7.4 presents the percentages of adolescent never smokers who think that people their age care about staying off cigarettes. In 1990, nearly three-quarters (73.8±1.9%) of adolescents felt that people their age cared about staying off cigarettes, with nearly 40% indicating that they cared a lot about it. These percentages declined through 1996 when less than half of adolescents indicated that people their age cared about staying off cigarettes, and only about 15% felt that they cared a lot about it. However, these percentages increased by 1999, when nearly 60% reported that their peers cared, and with about one-quarter

reporting that they cared a lot. By 2002, nearly two-thirds of never smokers ($65.5 \pm 1.7\%$) reported that their peers cared to some extent, but the percentage who said they cared a lot remained unchanged from the 1999 (about one-quarter).

Figure 7.4: Adolescent Never Smokers Who Report That Their Peers Care About Staying Off Cigarettes



These trends appear correlated with reported exposure to best friends who smoked. Again, the lack of a marked change in this variable between 1999 and 2002 does not correspond to the large decline in experimentation or established smoking reported during the period. Also, the 2002 level was significantly lower than the level in 1990, despite less smoking in 2002 compared to 1990.

Appendix Tables A.7.5 and A.7.6 present the percentages of adolescent never smokers with best friends who smoke and who perceive that their peers care about staying off cigarettes, respectively, in demographic subgroups.

Parental Attitudes Toward Adolescent Smoking Behavior

Since adolescents are likely to hold similar value systems to their parents (Steinberg, 1996), parental attitudes toward adolescent smoking will have an important influence on adolescent decision making. To assess perceived parental attitudes, the CTS asked all adolescents to agree or disagree with the following statement:

When I'm older, my parents won't mind if I smoke.

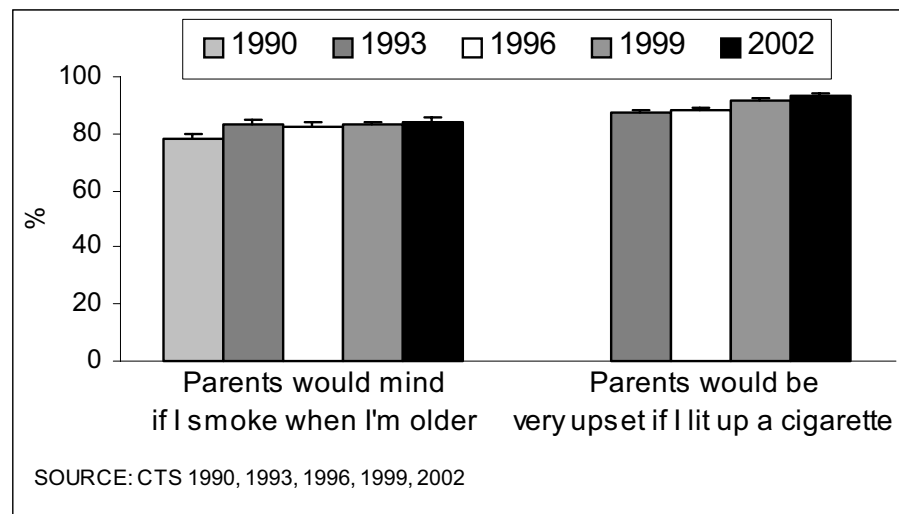
Starting in 1993, the following additional question was asked:

If you lit up a cigarette in front of your parents, how do you think that they would react?

Response choices for this question were: “Tell you to stop and be very upset,” “Tell you to stop, but not be very upset,” “Not tell you to stop, but would disapprove,” or “Have no reaction.” Here, the focus is on the percentage of adolescents who provided the first response.

Figure 7.5 presents the trends in adolescent perceptions of parental attitudes towards smoking.

Figure 7.5: Adolescent Perceptions of Parental Attitudes Toward Adolescent Smoking



| | 1990 | 1993 | 1996 | 1999 | 2002 |
|---|------|------|------|------|------|
| Parents would mind if I smoke when I'm older | 78.3 | 83.4 | 82.6 | 83.3 | 84.3 |
| Parents would be very upset if I lit up a cigarette | 87.3 | 88.4 | 91.6 | 93.6 | |

Levels of perceived parental disapproval of their adolescent smoking now or in the future were high and changed little.

In 1990, 78.3±1.7% of California adolescents indicated that they thought that their parents would mind if they smoked when they were older. This percentage increased slightly to 83.4±1.4% in 1993 and stayed essentially the same through the year 2002. The converse is that over the 10 years through 2002, between 16 and 22% of adolescents felt that their parents would not mind if they smoked when they were older.

In 1993, almost 90% (87.3±1.1%) of adolescents responded that their parents would tell them to stop and be very upset if they were to light up a cigarette in front of them. This percentage increased very slightly with each survey year after 1995, reaching 93.6±0.7% in 2002, a significant increase from 1993.

While these changes were in the appropriate direction to discourage adolescent smoking, they were not large.

Trends in Beliefs in Benefits to Smoking

In each CTS, all adolescents were asked to agree or disagree with each of the following statements about potential benefits to smoking:

Smoking can help people when they are bored.

Cigarette smoking helps people relax.

Cigarette smoking helps reduce stress.

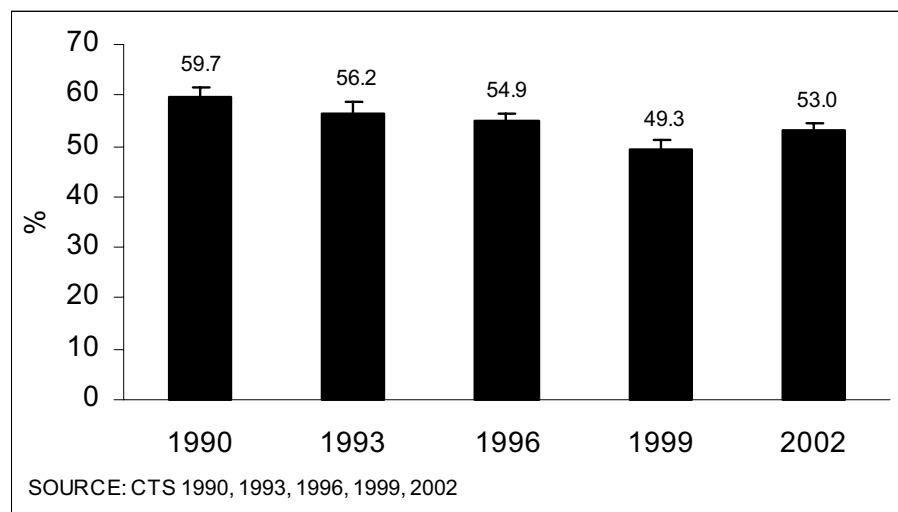
Smoking helps people feel more comfortable at parties and in other social situations.

Smoking helps people keep their weight down.

Over one half of adolescent never smokers believed that there is at least one benefit to smoking, and this percentage did not change greatly between 1990 and 2002.

Figure 7.6 presents the percentage of never smokers who perceived at least one of the above potential benefits to smoking in each survey year. In 1990, nearly 60% ($59.7 \pm 1.8\%$) of never smokers thought that there was at least one of the above benefits associated with smoking. This percentage decreased slightly each year through 1999, when just under 50% ($49.3 \pm 1.8\%$) of adolescents perceived a benefit. However, between 1999 and 2002, the percentage perceiving a benefit to smoking had again risen significantly to $53.0 \pm 1.6\%$.

Figure 7.6: Adolescent Never Smokers Who Perceive Benefits to Smoking



While the percentage of adolescent never smokers who perceived a benefit to smoking has declined, it is still high, and showed a recent significant increase.

Trends in Beliefs that Should Reduce the Likelihood of Adolescent Smoking Initiation

Each CTS asked adolescents to indicate whether they agreed or disagreed with each of the following three statements about the safety and addictiveness of cigarettes:

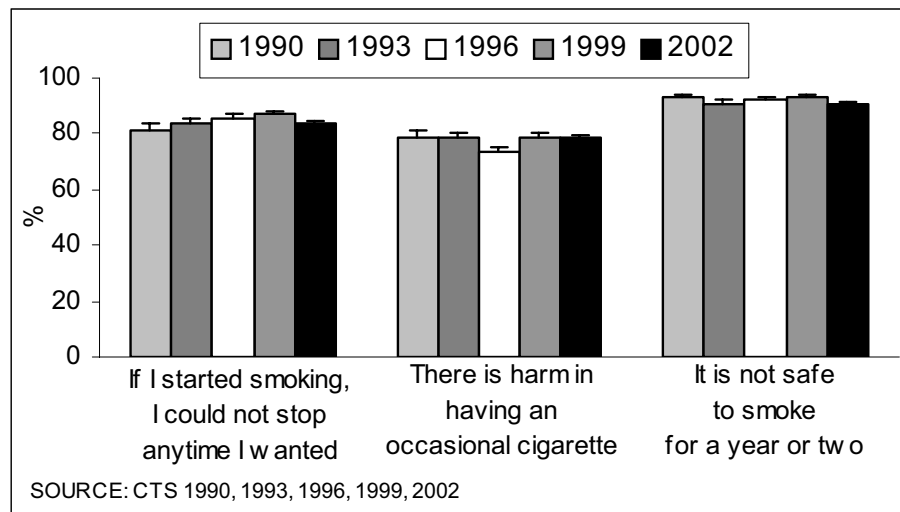
There is any harm in having an occasional cigarette.

It's safe to smoke for only a year or two.

{If I started to smoke regularly} I could stop smoking anytime I wanted.

Figure 7.7 shows the percentage of never smokers who agreed with the first statement and disagreed with the second two.

Figure 7.7: Adolescent Never Smokers' Beliefs About Risks of Smoking



| | 1990 | 1993 | 1996 | 1999 | 2002 |
|---|------|------|------|------|------|
| If I started smoking, I could not stop anytime I wanted | 81.4 | 83.7 | 85.9 | 86.9 | 83.5 |
| There is harm in having an occasional cigarette | 79.0 | 78.5 | 73.8 | 78.5 | 78.3 |
| It is not safe to smoke for only a year or two | 93.0 | 90.4 | 92.1 | 92.8 | 90.9 |

Depending on the survey item, 70-90% of never smokers think that there are risks to smoking, and these high percentages remained relatively stable between 1990 and 2002.

Between 1990 and 1999, the percentage of never smokers who disagreed with the statement "If I started to smoke regularly I could stop smoking anytime I wanted" increased only very slightly from 81.4±2.5% in 1990 to 86.9±1.3% in 1999. However, between 1999 and 2002, this percentage again decreased to 83.5±1.1%. In 2002, 78.3±1.5% of adolescents agreed with the statement that there was harm in having an occasional cigarette. This was unchanged from the level in any other survey year. Also, in 2002, the percentage of adolescents who disagreed that it was safe to smoke for only a year or two was 90.9±0.9%, again essentially unchanged from 1990.

Thus, only very small changes were observed in just one of these beliefs that should reduce the likelihood of smoking, and this variable showed a recent change in the wrong direction.

Perceptions About the Utility of Nicotine Replacement Therapy for Smoking Cessation

Concern about the influence on adolescents of advertisements for nicotine replacement therapy after it went over-the-counter in 1996 led to the inclusion of a new question in the 2002 CTS. All adolescents were asked to agree or disagree with the following statement:

Nicotine patches or gum are a sure way for smokers to quit when they want to.

The results are included here because there were some interesting findings with respect to adolescents' beliefs that they could quit smoking anytime they wanted if they started to smoke, according to smoking status. First, the data are described for each of these factors separately.

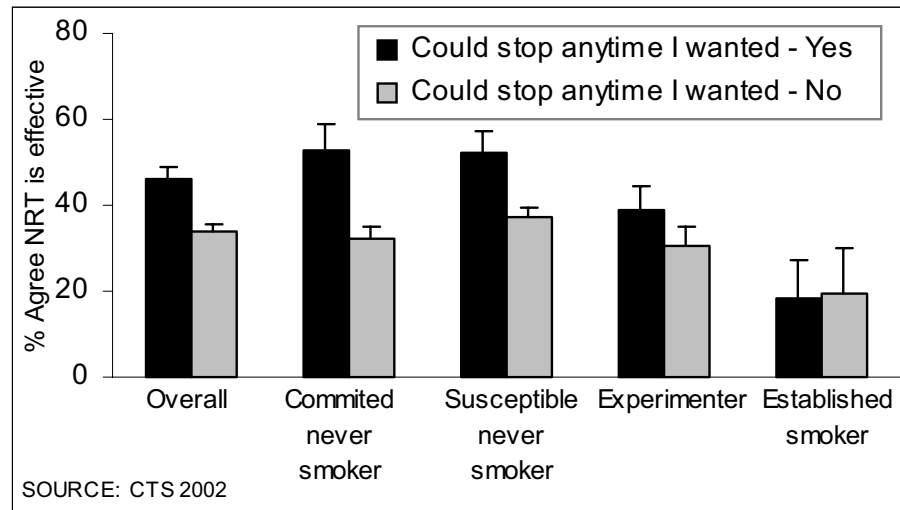
Overall, 36.3±1.5% of adolescents agreed with this statement, but the percentage was much higher for those who thought that they could quit anytime they wanted (45.9±2.9%) compared to those who disagreed (33.8±1.8%).

There were large differences in the belief that NRT was an effective way to quit by the smoking experience of the adolescent. Established smokers were much less likely to agree that NRT was an effective way to quit than less experienced adolescents. Overall, only 19.0±6.4% of established smokers thought that it was effective compared to 33.9±3.3% of experimenters, 39.7±2.3 of susceptible never smokers and 35.2±2.8% of committed never smokers. Likely, the adolescents who would be most informed about the effectiveness of NRT would be established smokers, the vast majority of whom have tried to quit themselves (see Table 7.3) and who may have smokers in their social environment who have tried to quit using NRT.

Figure 7.8 presents the response to this question by level of smoking experience and by whether or not the respondent thought they could quit smoking anytime they wanted to.

For established smokers, the perception that they could quit anytime they wanted was not associated with agreement that NRT was effective. While there was a larger difference among those who were classified as experimenters, it did not reach statistical significance. However, there was a large significant difference for susceptible never smokers and committed never smokers in the percentages believing in the effectiveness of NRT, depending on whether or not they thought they could quit smoking any time they wanted if they started.

Figure 7.8: Adolescent Beliefs that NRT is a Sure Way for Smokers to Quit



| | Could stop anytime I wanted | |
|--------------------------|-----------------------------|------|
| | Yes | No |
| Overall | 45.9 | 33.8 |
| Committed never smoker | 52.9 | 32.4 |
| Susceptible never smoker | 52.5 | 37.0 |
| Experimenter | 39.0 | 30.3 |
| Established smoker | 18.5 | 19.6 |

Some adolescents may be getting a false idea about the ease of smoking cessation from advertisements for nicotine replacement therapy products.

These data suggest that, particularly for never smokers, belief that NRT is an effective way to quit might be undermining their concern that they will get addicted to smoking if they were to start — a message that has been promoted by the tobacco control program. While it is possible that this belief in the effectiveness of NRT might come from family and peer smokers they know using NRT to quit successfully, a more likely source of this belief is the intensive pharmaceutical advertising campaign on television since NRT went over-the-counter. Established smokers, who may have tried to quit

using these products or know someone who has, appear more skeptical of a benefit. Since these results are cross-sectional, further research is required to address these associations more completely.

Personal Attitudes Against Smoking and Smokers

Another variable from psychosocial models that might predict change in smoking behavior is the existence of strong personal attitudes against smoking. The California Tobacco Control Program may have radically changed adolescents' willingness to accept smoking.

To measure strong attitudes against smoking, all adolescents were asked to agree or disagree with the following statements:

I strongly dislike being around people who are smoking.

Seeing someone smoke turns me off.

I could put up with smoking if I really liked a person and wanted to go out with him or her.

I personally don't mind being around people who are smoking.

Adolescent never smokers who provided responses to all four questions that indicated they objected to people smoking were categorized as strongly objecting to smoking.

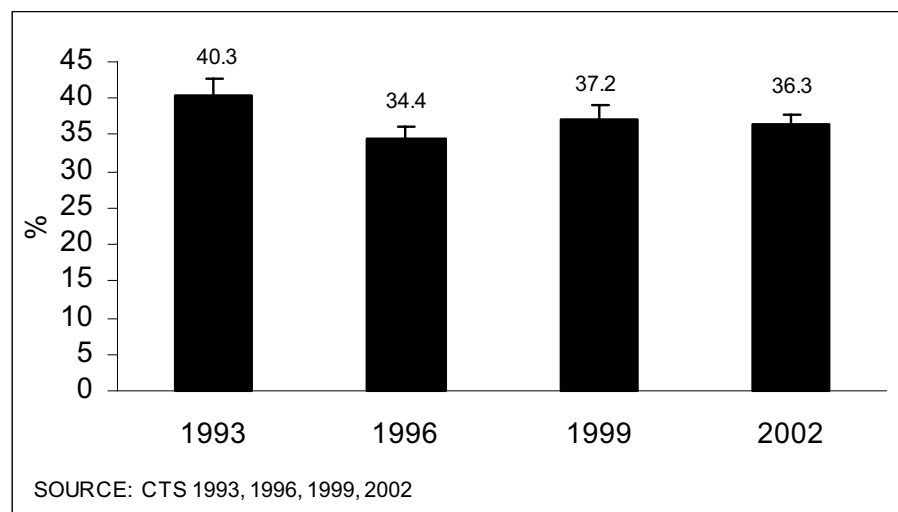
Adolescents also had to disagree with the statement:

Smoking helps people feel more comfortable at parties and in other social situations.

Less than 40% of California adolescents have personal beliefs that are strongly against smoking and there was no significant increase between 1993 and 2002.

Figure 7.9 shows the percentages of adolescent never smokers who had strong consistent personal attitudes against smoking for each survey year. Between 1993 and 1996, the percentages with strong attitudes against smoking declined slightly from about 40% to around 35% through 2002. If this were the critical antecedent to smoking initiation in California, there should have been an upward trend in the percentage of never smokers strongly against smoking. The major changes in the smoking behavior measures occurred between 1996 and 2002, but attitudes against smoking and smokers did not change significantly over this period.

Figure 7.9: Adolescent Never Smokers Who Strongly Object to Smoking and See No Social Benefit to Smoking



The findings of the final section of this chapter suggest that there were not major changes in variables reflecting adolescents' beliefs, expectations and attitudes regarding smoking that would account for the changes in smoking behavior observed in recent years. Chapters 6, 9, 10, 11, and 12 present some interesting trends in other factors related to society's "structural" rules regarding smoking. These changes are more marked and appear to more closely relate to the changes in adolescent smoking behavior observed.

5. Summary

Whatever measure of smoking uptake is considered, the compelling conclusion is that adolescent smoking behavior has changed dramatically since the start of the California Tobacco Control Program. Further, since 1996, all measures have shown consistent and major declines.

Among 12- to 13-year-olds, ever smoking rates declined consistently between 1990 and 1996 at a rate of 0.7% per year. Between 1996 and 2002, ever smoking rates declined at 1.5% per year, so that only $5.6 \pm 1.1\%$ of this age group reported having smoked in 2002, a factor decline of 70.4% since 1990.

Among 14- to 17-year-olds, the percentage reporting having ever smoked did not decline between 1990 and 1996. In 1996, $35.5 \pm 2.2\%$ of 14- to 15-year-olds and $52.9 \pm 2.6\%$ of 16- to 17-year-olds were ever smokers. Between 1996 and 2002, the rate of ever smoking decreased rapidly for both age groups. Among 14- to 15-year-olds, ever smoking declined at a rate of 2.9% per year so that, in 2002, only $18.4 \pm 2.2\%$ reported having smoked, a factor decline since 1996 of 48.2%. This was approximately half of the average level of ever smoking observed in the 1990 to 1996 CTS. Among 16- to 17-year-olds, ever smoking decreased at a rate of 3.0% per year so that, in 2002, $35.1 \pm 1.9\%$ reported having smoked. This level of ever smoking was lower than in 1996 by a factor of 36.6%.

Less than 1% of 12- to 13-year-olds had progressed to become established smokers in any survey year. Among 14- to 15-year-olds, $5.4 \pm 1.1\%$ were already established smokers in 1996, which was not significantly different from the 1990 level. Between 1996 and 2002, this percentage declined at a rate of 0.6% per year to $1.7 \pm 0.7\%$ in 2002, a reduction by a factor of 68.5%. Among 16- to 17-year-olds, the percentage of established smokers was stable between 1990 and 1996, when $15.0 \pm 1.7\%$ were in this category. However, between 1996 and 2002, this percentage declined at a rate of 1.5% per year to only $6.1 \pm 1.0\%$ in 2002, a reduction by a factor of 59.3% from the 1996 level.

Research has identified a group of adolescents at very low risk for future smoking — committed never smokers who have never been curious about smoking. The percentage of adolescents who are categorized as very low risk has increased since 1996 (first measured), with the largest increase in the youngest age group. In 2002, $37.9 \pm 2.5\%$ of 12- to 13-year-olds, $29.8 \pm 2.5\%$ of 14- to 15-year-olds, and $28.3 \pm 2.1\%$ of 16- to 17-year-olds were committed never smokers who said they had definitely never been curious about smoking. However, the majority of California adolescents are either vulnerable to start smoking or have already done so.

The decline in the percentage of adolescents considered established smokers was not the result of increased successful quitting. The percentage of adolescent established smokers who were former smokers remained stable between 1990 and 2002. Improved questions on recent quit attempts were added to the CTS in 1996. Since then, the percentage of established smokers who reported trying to quit in the past year (approximately 70%) has not changed.

A potentially important issue is a belief that NRT provides a sure way to quit among adolescents concerned about the addictiveness of cigarettes. Such a belief pattern could possibly promote smoking initiation, since never smokers would feel they could use NRT to quit whenever they wanted. Further research is necessary to address this issue, paying particular attention to the role that pharmaceutical advertising of NRT products may have in fostering such a belief.

Because theory would predict that the unprecedented and relatively abrupt changes in adolescent smoking behavior should be associated with similar changes in important known psychosocial antecedents of adolescent smoking, this chapter examined trends in a number of these antecedents. Two of the antecedents — peer smoking and perceived peer anti-smoking norms — changed substantially. However, the trends in these antecedents did not closely match trends in the key measures of adolescent smoking uptake. For instance, the 2002 levels of these antecedents were similar to the levels observed in 1990, but all measures of smoking uptake, including smoking prevalence, were much lower in 2002 compared to 1990. Other potential psychosocial antecedents changed very little over this period, certainly not enough individually to have driven the changes in adolescent smoking observed in California. While it might be expected that collective consistent changes in many such variables would produce gradual changes in smoking behavior, this was not the pattern observed in California over this period.

If psychosocial antecedents were not substantially involved in the abrupt and large changes in adolescent smoking, this suggests that the California Tobacco Control Program's "structural" changes to the environment could be responsible. These structural changes include reduced access to tobacco, higher cigarette prices, increased smoking restrictions, restrictions on tobacco advertising and promotions, effective counter-marketing campaigns, and changes in school smoking policies and anti-tobacco curricula. Most of these structural changes intensified after 1996 and could have precipitated the dramatic declines in adolescent smoking since then. While these changes may or may not influence adolescent vulnerability to smoking, they likely curtail the opportunities and temptations for such adolescents to start to smoke.

Some psychosocial antecedents remain at levels indicating that substantial percentages of adolescents are still vulnerable to smoking. For instance, in 2002, only about 35% of adolescent never smokers had strong attitudes against smokers and smoking, and more than 50% perceived a benefit to smoking. Thus, if effective tobacco control measures were watered-down or eliminated, it is possible that pro-tobacco influences could reverse the encouraging trends in adolescent smoking behavior seen in California in recent years.

Chapter

7

APPENDIX

Adolescent Smoking Behavior

1. Demographic Trends in California Adolescents for Key Measures of Smoking Behavior

Table A.7.1 presents the ever-smoking trends among 12- to 14-year-old adolescents. At the start of the California Tobacco Control Program, 22.7% of 12- to 14-year-old Californians had already had their first cigarette or puffed on one. This percentage dropped dramatically after 1996 so that by the year 2002 only 8.0% of these adolescents had smoked a cigarette, which is one third of the 1990 rate. This decline occurred in all demographic groups.

| Table A.7.1 Ever Smoking in Demographic Subgroups of 12- to 14-Year-Olds | | | | | |
|---|------------|------------|------------|------------|------------|
| | 1990 % | 1993 % | 1996 % | 1999 % | 2002 % |
| Overall | 22.7 (2.5) | 22.1 (2.1) | 19.7 (1.7) | 14.8 (1.5) | 8.0 (1.1) |
| Gender | | | | | |
| Boys | 26.8 (4.1) | 24.1 (3.0) | 21.0 (2.5) | 15.3 (2.3) | 8.2 (1.6) |
| Girls | 18.8 (2.7) | 20.2 (2.3) | 18.2 (1.9) | 14.2 (2.3) | 7.8 (1.4) |
| Race/Ethnicity | | | | | |
| African American | 17.0 (5.4) | 19.7 (6.7) | 16.2 (5.5) | 11.2 (4.1) | 5.5 (2.6) |
| Asian/PI | 15.0 (6.9) | 11.2 (4.6) | 13.9 (4.3) | 8.3 (4.8) | 3.5 (2.2) |
| Hispanic | 22.7 (2.1) | 23.3 (4.1) | 18.6 (2.9) | 17.5 (3.1) | 9.7 (2.1) |
| Non-Hispanic White | 26.3 (2.3) | 23.1 (2.8) | 21.6 (2.2) | 14.8 (1.4) | 8.2 (1.8) |
| School Performance | | | | | |
| Much Above Average | 16.4 (2.7) | 13.2 (4.2) | 12.0 (2.4) | 9.1 (2.7) | 2.2 (1.1) |
| Above Average | 18.8 (2.0) | 19.1 (3.6) | 18.1 (2.5) | 12.6 (2.7) | 5.8 (1.5) |
| Average or Below | 28.9 (3.0) | 28.9 (3.4) | 25.8 (3.1) | 19.2 (2.7) | 13.9 (2.3) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1990, 1993, 1996, 1999, 2002

In 2002, perceived performance in school was the variable that was associated with the largest difference in ever smoking. Only 2.2% of those who perceived that they were much above average in their school performance reported that they had smoked. This percentage was 5.8% for those who felt that they were above average, with 13.9% of those who felt that they were performing at or below average in school indicating that they had smoked. Thus, in 2002 there was a 6-fold difference by this variable compared to a less than 2-fold difference in 1990. In 2002, the only other difference to reach statistical significance was that between the Asian/PI group vs. Hispanics and Non-Hispanic Whites.

The trends in ever smoking among 15- to 17-year-olds are presented in **Table A.7.2**. The decline in ever smoking among these older adolescents over the survey period (1990-2002) was considerably less than that observed in the 12- to 14-year-olds. In 2002, the ever-smoking rate was approximately two thirds of the 1990 rate.

| Table A.7.2 Ever Smoking in Demographic Subgroups of 15- to 17-Year-Olds | | | | | |
|---|--------------|--------------|-------------|-------------|-------------|
| | 1990 % | 1993 % | 1996 % | 1999 % | 2002 % |
| Overall | 50.9 (22.8) | 49.1 (22.2) | 48.8 (22.3) | 40.0 (22.5) | 31.2 (21.7) |
| Gender | | | | | |
| Boys | 52.1 (23.9) | 52.6 (24.2) | 50.9 (23.1) | 41.1 (23.2) | 32.0 (22.9) |
| Girls | 49.7 (23.8) | 45.6 (23.6) | 46.4 (22.9) | 38.8 (22.9) | 30.2 (22.5) |
| Race/Ethnicity | | | | | |
| African American | 46.5 (25.4) | 36.5 (210.9) | 42.8 (26.6) | 31.7 (26.4) | 21.6 (27.5) |
| Asian/PI | 36.3 (26.9) | 35.3 (29.7) | 35.8 (26.6) | 30.5 (26.2) | 24.1 (25.0) |
| Hispanic | 50.2 (212.1) | 48.6 (26.0) | 49.8 (23.8) | 40.1 (24.1) | 33.2 (25.0) |
| Non-Hispanic White | 54.6 (22.5) | 53.5 (23.2) | 52.3 (23.3) | 44.7 (22.9) | 32.8 (22.8) |
| School Performance | | | | | |
| Much Above Average | 37.0 (22.7) | 34.5 (24.6) | 30.8 (24.2) | 27.7 (25.2) | 21.8 (23.5) |
| Above Average | 48.2 (22.0) | 46.3 (24.5) | 47.1 (23.4) | 37.5 (24.3) | 27.4 (22.9) |
| Average or Below | 58.6 (23.0) | 56.2 (23.4) | 59.9 (23.1) | 48.5 (23.1) | 39.4 (22.9) |

TABLE ENTRIES ARE ADJUSTED (2002) PERCENTAGES AND 95% CONFIDENCE LIMITS.
 SOURCE: CTS 1990, 1993, 1996, 1999, 2002

Just as for the younger adolescents, perceived performance in school was the variable that was associated with the largest difference in ever smoking in 2002. Only 21.823.5% of 15- to 17-year-olds who reported performing much better than average had ever smoked. This was lower than those who reported performing above average (27.422.9%), and much lower than the 39.422.9% who reported that their school performance was average or below. Thus, there was almost a two-fold difference in ever smoking by perceived performance in school. There were significant differences in ever smoking in this age group of Californians among different racial/ethnic groups. Both African American (21.627.5%) and Asian/PIs (24.125.0%) were less likely to have smoked than Non-Hispanic-Whites (32.822.8%).

Table A.7.3 presents trends in establishing smoking among 15- to 17-year-olds. At the start of the California Tobacco Control Program, 10.5±1.6% of older adolescents in California had smoked at least 100 cigarettes. This percentage dropped dramatically after its peak of 12.1±1.4% in 1996. In 2002, only 4.6±0.6% of these adolescents had smoked at least 100 cigarettes, which is half of the 1990 rate.

| Table A.7.3 Established Smoking in Demographic Subgroups of 15- to 17-Year-Olds | | | | | |
|--|-------------|-------------|-------------|-------------|------------|
| | 1990 % | 1993 % | 1996 % | 1999 % | 2002 % |
| Overall | 10.5 (±1.6) | 9.9 (±1.5) | 12.1 (±1.4) | 8.0 (±1.1) | 4.6 (±0.6) |
| Gender | | | | | |
| Boys | 11.5 (±2.6) | 10.5 (±2.2) | 12.5 (±2.0) | 8.5 (±1.3) | 4.7 (±1.1) |
| Girls | 9.5 (±1.8) | 9.2 (±2.0) | 11.7 (±1.8) | 7.5 (±1.4) | 4.6 (±1.1) |
| Race/Ethnicity | | | | | |
| African American | 4.6 (±5.4) | 2.5 (±2.7) | 5.7 (±3.5) | 4.0 (±3.0) | 3.0 (±2.4) |
| Asian/PI | 7.6 (±6.9) | 6.9 (±7.6) | 8.3 (±3.4) | 5.4 (±3.0) | 3.0 (±1.6) |
| Hispanic | 7.0 (±2.1) | 6.1 (±1.8) | 8.1 (±2.0) | 6.0 (±1.3) | 2.6 (±1.0) |
| Non-Hispanic White | 14.4 (±2.3) | 13.7 (±2.0) | 16.2 (±1.9) | 11.1 (±1.8) | 7.3 (±1.6) |
| School Performance | | | | | |
| Much Above Average | 5.2 (±2.7) | 5.2 (±2.6) | 5.6 (±1.9) | 4.2 (±1.8) | 3.5 (±1.6) |
| Above Average | 8.2 (±2.0) | 9.0 (±2.4) | 10.2 (±2.2) | 6.8 (±1.8) | 3.2 (±0.9) |
| Average or Below | 14.5 (±3.0) | 12.2 (±2.2) | 17.4 (±2.1) | 11.1 (±1.7) | 6.5 (±1.4) |

TABLE ENTRIES ARE ADJUSTED (2002) PERCENTAGES AND 95% CONFIDENCE LIMITS.
 SOURCE: CTS 1990, 1993, 1996, 1999, 2002

Established smoking appears to have begun its decline in 1999, and it continued to decline in 2002 in all demographic groups. The declines in established smoking for boys and girls were about the same. In 2002, perceived performance in school and adolescent ethnicity were variables that were associated with the largest differences in established smoking. Approximately 3% of those who perceived that they were either much above average or above average in their school performance reported that they had smoked at least 100 cigarettes. This percentage was 6.5±1.4% for those who reported that they were performing below average at school. There was also a significant difference between the rate of established smoking for Non-Hispanic Whites and adolescents of all other racial/ethnic groups.

Table A.7.4 shows that between 1996 and 2002, all major sociodemographic groups evidenced increases in the percentage of young people who were committed never smokers who had never been curious about smoking. As for the data on ever smoking, the percentage in this lowest risk category was strongly related to perceived performance in school with 41.3 \pm 3.3% of those who reported that they were performing much better than average, being at lowest risk compared to only 25.1 \pm 1.7% for those who reported that they were performing at an average level or below.

| Table A.7.4 Committed Never Smokers Who Have Never Been Curious about Smoking in Demographic Subgroups of 12- to 17-Year-Olds | | | | |
|--|-------------------|-------------------|-------------------|--|
| | 1996 % | 1999 % | 2002 % | Factor Increase 1996-2002 % |
| Overall | 23.3 (1.2) | 28.4 (1.1) | 32.2 (1.2) | 38.2 |
| Age | | | | |
| 12-14 | 24.0 (1.5) | 31.8 (1.8) | 35.4 (1.9) | 47.5 |
| 15-17 | 22.6 (1.8) | 24.9 (1.7) | 28.8 (1.7) | 27.4 |
| Gender | | | | |
| Boys | 20.7 (1.5) | 26.6 (1.8) | 28.1 (1.7) | 35.7 |
| Girls | 26.2 (1.8) | 30.3 (1.9) | 36.6 (2.0) | 39.7 |
| Race/Ethnicity | | | | |
| African American | 28.5 (4.4) | 36.6 (4.4) | 39.6 (5.3) | 38.9 |
| Asian/PI | 25.4 (3.7) | 27.3 (4.8) | 30.0 (5.0) | 18.1 |
| Hispanic | 20.6 (2.1) | 25.0 (1.7) | 27.6 (2.0) | 34.0 |
| Non-Hispanic White | 23.8 (1.5) | 30.0 (1.5) | 36.9 (2.0) | 55.0 |
| School Performance | | | | |
| Much Above Average | 32.6 (2.7) | 40.7 (3.0) | 41.3 (3.3) | 26.7 |
| Above Average | 23.4 (1.9) | 29.0 (2.1) | 34.1 (2.4) | 45.7 |
| Average or Below | 17.9 (1.6) | 22.0 (1.6) | 25.1 (1.7) | 40.2 |

TABLE ENTRIES ARE ADJUSTED (2002) PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1990, 1993, 1996, 1999, 2002

At all time points, girls were much more likely to be in the lowest risk category than boys. While there was no difference by age in 1996, by 2002 younger adolescents (12- to 14-year-olds) were much more likely to be in this lowest risk category than 15- to 17-year-olds (35.4 \pm 1.9% vs. 28.8 \pm 1.7%). Hispanics (27.6 \pm 2.0%) were also much less likely to be in this lowest risk category than African Americans or Non-Hispanic Whites. The increase in the percentage in this lowest risk category was not significant for the Asians/PI group.

2. Demographic Trends in Important Psychosocial Predictors of Adolescent Smoking

Table A.7.5 presents the trends among adolescent never smokers who reported having best friends who smoke. At the start of the California Tobacco Control Program, 25.9±1.9% of California adolescents reported that they had a best friend who smoked. After a peak of 44.9±1.8% in 1996, this percentage decreased substantially so that by 2002 only 26.5±1.2% reported having a best friends who smoked, a return to the 1990 rate.

| Table A.7.5 Adolescent Never Smokers Who Have Friends Who Smoke, in Demographic Subgroups | | | | | |
|--|-------------|-------------|-------------|-------------|-------------|
| | 1990 % | 1999 % | 1996 % | 1999 % | 2002 % |
| Overall | 25.9 (±1.9) | 31.3 (±1.9) | 44.9 (±1.8) | 37.0 (±1.5) | 26.5 (±1.2) |
| Age | | | | | |
| 12-14 | 19.0 (±2.6) | 22.9 (±2.4) | 34.7 (±2.3) | 26.1 (±1.9) | 16.5 (±1.8) |
| 15-17 | 37.5 (±4.3) | 45.5 (±3.5) | 61.0 (±2.6) | 53.0 (±3.0) | 41.0 (±2.3) |
| Gender | | | | | |
| Boys | 24.5 (±2.9) | 30.6 (±2.6) | 42.1 (±2.4) | 35.3 (±2.1) | 22.7 (±1.8) |
| Girls | 27.1 (±2.8) | 31.9 (±3.2) | 47.8 (±2.2) | 38.8 (±2.3) | 30.5 (±2.2) |
| Race/Ethnicity | | | | | |
| African American | 25.0 (±9.1) | 27.0 (±7.7) | 48.1 (±5.8) | 44.0 (±4.8) | 28.5 (±5.5) |
| Asian/PI | 20.3 (±6.0) | 25.0 (±5.9) | 46.9 (±5.1) | 34.1 (±6.2) | 21.3 (±3.5) |
| Hispanic | 27.2 (±4.0) | 34.7 (±4.1) | 45.6 (±3.0) | 38.8 (±3.0) | 29.6 (±2.3) |
| Non-Hispanic White | 26.4 (±2.7) | 31.1 (±2.6) | 43.1 (±2.3) | 35.0 (±2.5) | 24.2 (±1.8) |
| School Performance | | | | | |
| Much Above Average | 21.9 (±3.7) | 25.6 (±4.3) | 40.7 (±3.2) | 34.2 (±3.4) | 19.2 (±2.4) |
| Above Average | 25.6 (±4.2) | 30.6 (±3.3) | 45.9 (±3.0) | 35.8 (±3.1) | 26.2 (±2.2) |
| Average or Below | 28.3 (±3.4) | 35.1 (±3.3) | 47.2 (±3.2) | 39.9 (±3.0) | 32.0 (±2.7) |

TABLE ENTRIES ARE ADJUSTED (2002) PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1993, 1996, 1999, 2002

The increase in adolescents' reports of having best friends who smoke from 1990 to 1996 and subsequent decline occurred in all demographic groups. In all survey years, older adolescents were much more likely than younger adolescents to report having best friends who smoked. In 2002, boys were significantly less likely than girls to report that they had best friends who smoked. Also in 2002, Hispanics were more likely to report having a best friend who smoked than were Asian/Pis. Perceived performance in school was associated with a large difference in having best friends who smoke. Only 19.2±2.4% of those who perceived that they were much above average in their school performance reported that they had a best friends who smoked. This percentage was 26.2±2.2% for those who felt that they were above average, with 32.0±2.7% of those who felt that they were performing at or below average in school having a best friend who smoked.

Table A.7.6 presents the trends among adolescents who reported that their peers cared about staying off cigarettes. As would be expected, trends in these percentages reflect the trends in the previous table on reports of best friends who smoke. At the start of the California Tobacco Control Program, 73.8 \pm 1.9% of California adolescents reported that their peers cared about staying off cigarettes. This percentage decreased between 1990 and 1996 to 46.8 \pm 1.5%, and then increased from 1996 to 2002 to 65.5 \pm 1.7%, which is still significantly lower than then 1990 rate.

| Table A.7.6 Adolescent Never Smokers who Report That Their Peers Cared About Staying Off Cigarettes, in Demographic Subgroups | | | | | |
|--|-------------------|-------------------|-------------------|-------------------|-------------------|
| | 1990 % | 1993 % | 1996 % | 1999 % | 2002 % |
| Overall | 73.8 (\pm 1.9) | 57.8 (\pm 2.3) | 46.8 (\pm 1.5) | 59.7 (\pm 1.7) | 65.5 (\pm 1.7) |
| Age | | | | | |
| 12-14 | 80.3 (\pm 2.6) | 62.8 (\pm 2.8) | 52.2 (\pm 2.2) | 65.9 (\pm 2.1) | 70.9 (\pm 2.0) |
| 15-17 | 62.8 (\pm 3.6) | 49.3 (\pm 3.9) | 38.2 (\pm 3.1) | 50.7 (\pm 2.9) | 57.9 (\pm 2.6) |
| Gender | | | | | |
| Boys | 76.6 (\pm 2.9) | 56.6 (\pm 2.7) | 49.3 (\pm 2.1) | 63.0 (\pm 2.3) | 67.6 (\pm 2.3) |
| Girls | 71.2 (\pm 2.9) | 58.8 (\pm 3.4) | 44.2 (\pm 2.3) | 56.3 (\pm 2.4) | 63.4 (\pm 2.2) |
| Race/Ethnicity | | | | | |
| African American | 67.3 (\pm 9.1) | 48.4 (\pm 9.2) | 38.3 (\pm 6.0) | 53.4 (\pm 6.6) | 53.8 (\pm 7.1) |
| Asian/PI | 78.5 (\pm 5.2) | 63.1 (\pm 7.8) | 56.0 (\pm 5.8) | 69.6 (\pm 6.1) | 71.5 (\pm 4.9) |
| Hispanic | 70.4 (\pm 3.9) | 57.4 (\pm 4.5) | 41.4 (\pm 3.3) | 51.4 (\pm 2.8) | 62.7 (\pm 2.8) |
| Non-Hispanic White | 76.6 (\pm 2.5) | 59.0 (\pm 3.3) | 50.2 (\pm 2.3) | 65.5 (\pm 2.6) | 69.2 (\pm 2.4) |
| School Performance | | | | | |
| Much Above Average | 77.8 (\pm 3.6) | 67.2 (\pm 4.5) | 54.2 (\pm 3.4) | 65.5 (\pm 3.6) | 70.4 (\pm 3.2) |
| Above Average | 78.5 (\pm 3.6) | 58.6 (\pm 3.5) | 46.9 (\pm 2.4) | 61.5 (\pm 3.7) | 68.8 (\pm 2.8) |
| Average or Below | 66.9 (\pm 3.6) | 51.7 (\pm 4.2) | 40.7 (\pm 2.5) | 54.6 (\pm 3.4) | 58.7 (\pm 2.9) |

TABLE ENTRIES ARE ADJUSTED (2002) PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1993, 1996, 1999, 2002

This trend occurred in all demographic groups. In all survey years, younger adolescents were much more likely than older adolescents to report that their peers cared about staying off cigarettes. Of all racial/ethnic groups presented, African Americans were least likely and Asian/Pis were most likely to report that their peers cared about staying off cigarettes. In 2002, the Asian/PI group was significantly higher than all groups except Non-Hispanic Whites. Also, there were significant differences between Non-Hispanic Whites and African-Americans and Hispanics. Those who reported performing much better than average in school (70.4 \pm 3.2%) and those who reported performing above average (68.8 \pm 2.8%) were more likely to report that their peers cared about staying off cigarettes than were those who felt that they were performing at or below average in school (58.7 \pm 2.9%).

GLOSSARY

Adolescents

Committed never smoker – a *never smoker* who answers “definitely not” in answer to three question: trying a cigarette soon, accepting a cigarette if offered by a best friend, and likelihood of smoking in the next year.

Current established smoker – an *established smoker* who has smoked a cigarette on any day in the past month.

Established smoker – has smoked at least 100 cigarettes in his or her lifetime.

Ever smoker – has smoked a cigarette (includes *puffers* in this chapter).

Experimenter – has smoked a cigarette (excludes *puffers* and *established smokers*).

Former established smoker – an *established smoker* who has not smoked a cigarette on any days of the past month.

Never smoker – has never smoked or even puffed on a cigarette.

Puffer – someone who has not smoked a cigarette, but admits to puffing on one.

Susceptible never smoker – a *never smoker* who fails to answer “definitely not” to all three question about trying a cigarette soon, accepting a cigarette if offered by a best friend, and their likelihood of smoking in the next year.

REFERENCES

- Ajzen I, Fishbein M. *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice Hall; **1980**.
- Bandura A. Self-efficacy: toward a unifying theory of behavioral change. *Psychol Rev*. **1977**;84:191-215.
- Bandura A. *Social foundations of thought and action: A social cognitive theory*. National Inst of Mental Health, Rockville, MD; **1986**.
- Choi WS, Ahluwalia JS, Harris KJ, Okuyemi K. Progression to established smoking: The influence of tobacco marketing. *Am J Prev Med*. **2002**;22:228-233.
- Choi WS, Gilpin EA, Farkas AJ, Pierce JP. Determining the probability of future smoking among adolescents. *Addiction*. **2001**;96:313-323.
- Choi WS, Pierce JP, Gilpin EA, Farkas AJ, Berry C. Which adolescent experimenters progress to established smoking in the United States? *Am J Prev Med*. **1997**;13:385-391.
- Cronan TA, Conway TL, Kaszas SL. Starting to smoke in the Navy: When, where and why. *Soc Sci Med*. **1991**;33:1349-1353.
- De Micheli D, Formigoni ML. Are reasons for the first use of drugs and family circumstances predictors of future use patterns? *Addict Behav*. **2002**;27, 87-100.
- Flay BR, Sobel JL. The role of mass media in preventing adolescent substance abuse. *National Institute on Drug Abuse: Research Monograph Series*. **1983**;47:5-35.
- Gilpin EA, Pierce JP, Farkas AJ. Duration of smoking abstinence and success in quitting. *J Natl Cancer Inst*. **1997**;89:572-576.
- Gilpin EA, Choi WS, Berry C, Pierce JP. How many adolescents start smoking each day in the United States? *J Adolesc Health*. **1999**;25:248-255.
- Gilpin EA, Pierce JP. The California Tobacco Control Program and potential harm reduction through reduced cigarette consumption in continuing smokers. *Nic Tob Res*. **2002**;4(Suppl 2):S157-S166.
- Gritz ER, Prokhorov AV, Suchanek Hudmon K, Mullin Jones M, Rosenblum C, Chang CC, Chamberlain RM, Taylor WC, Johnston D, de Moor C. Predictors of susceptibility to smoking and ever smoking: a longitudinal study in a triethnic sample of adolescents. *Nic Tob Res*. **2003**;5:493-506.

- Hahn G, Charlin VL, Sussman S, Dent CW, Manzi J, Stacy AW, Flay B, Hansen WB, Burton D. Adolescent's first and most recent use situations of smokeless tobacco and cigarettes: similarities and differences. *Addict Behav.* **1990**;15:439-448.
- Hughes JR, Keely JP, Niaura RS, Ossip-Klein DJ, Richmond RL, Swan GE. Measures of abstinence in clinical trials: issues and recommendations. *Nic Tob Res.* **2003**;5:13-25.
- Institute of Medicine (IOM). Health and Behavior. *The Interplay of Biological, Behavioral, and Societal Influences.* Washington, DC: National Academy Press; **2001**.
- Jackson C. Cognitive susceptibility to smoking and initiation of smoking during childhood: a longitudinal study. *Prev Med.* **1998**;27:129-134.
- Pierce JP, Gilpin E. How long will today's new adolescent smoker be addicted to cigarettes? *Am J Public Health.* **1996**; 86: 253-256.
- Pierce JP, Choi W, Gilpin EA, Farkas AJ, Merritt RK. Validation of susceptibility as a predictor of which adolescents take up smoking in the US. *Health Psychol.* **1996**;15:355-361.
- Pierce JP, Gilpin EA, Emery SL, Farkas AJ, Zhu SF, Choi WS, Berry CC, Distefan JM, White MM, Soroko S, Navarro A. *Tobacco Control in California: Who's Winning the War? An Evaluation of the Tobacco Control Program: 1989-1996.* La Jolla, CA: University of California, San Diego; **1998**.
- Pierce JP, Gilpin EA. A minimum 6-month prolonged abstinence should be required for evaluating smoking cessation trials. *Nic Tob Res.* **2003**;5:151-153.
- Plummer BA, Velicer WE, Redding CA, Prochaska JO, Rossi JS, Pallonen UE, Meier KS. Stage of change, decisional balance, and temptations for smoking: Measurement and validation in a large, school-based population of adolescents. *Addict Behav.* **2001**;26:551-571.
- Prochaska JO, DiClemente CC. Stages and processes of self-change of smoking: Toward an integrative model of change. *J Con Clin Psychol.* **1983**;5:390-395.
- Riedel BW, Blitstein JL, Robinson LA, Murray DM, Klesges RC. The reliability and predictive value of adolescents' reports of initial reactions to smoking. *Nic Tob Res.* **2003**;5:553-559.
- Russell MA. The nicotine addiction trap: a 40-year sentence for four cigarettes. *Br J Addiction.* **1990**;85:293-300.
- Smith RE & Swinyard WR. Cognitive response to advertising and trial: Belief strength, belief confidence and product curiosity. *J Advertising.* **1998**;17:3-14.

Steinberg L. *Adolescence*. New York: McGraw-Hill; **1996**.

Tobacco Education and Research Oversight Committee (TEROC). *Toward a Tobacco-Free California: A Master Plan to Reduce Californians' Use of Tobacco*. January **1991**.

Tobacco Education and Research Oversight Committee (TEROC). *Toward a Tobacco-Free California: Strategies for the 21st Century 2000-2003*. January **2000**.

US Department of Health and Human Services (USDHHS). *The Health Consequences of Smoking, Nicotine Addiction. A Report of the Surgeon General*. Rockville, MD: US Department of Health and Human Services, Public Health Service, Centers for Disease Control, Center for Health Promotion and Education, Office on Smoking and Health; **1988**.

US Department of Health and Human Services (USDHHS). *Reducing the Health Consequences of Smoking: 25 Years of Progress. A Report of the Surgeon General*. Washington DC: US Department of Health and Human Services, Public Health Service, Centers for Disease Control, Center for Health Promotion and Education, Office on Smoking and Health; **1989**.

US Department of Health and Human Services (USDHHS). *Preventing Tobacco Use among Young People. A Report of the Surgeon General*. Rockville, MD: US Department of Health and Human Services, Public Health Service, Centers for Disease Control, Center for Health Promotion and Education, Office on Smoking and Health; **1994**.

TOBACCO CONTROL SUCCESSES IN CALIFORNIA:
A FOCUS ON YOUNG PEOPLE

Chapter 8

Smoking Cessation

| | |
|---|-------------|
| KEY FINDINGS | 8-2 |
| Introduction | 8-3 |
| 1. Trends in Predictors of Successful Cessation | 8-4 |
| Indicators of Addiction Level | 8-4 |
| Recent Quitting History | 8-6 |
| Life-time Quitting History | 8-8 |
| Lapses Among Former Smokers | 8-9 |
| 2. Smokers Who May Never Quit..... | 8-10 |
| 3. The Role of Workplace and Home Smoking Bans | 8-12 |
| 4. Smoking Cessation Assistance | 8-14 |
| Trends in the Use of Cessation Assistance | 8-14 |
| Use of NRT for Reasons Other than Cessation..... | 8-15 |
| 5. Physician Advice and Referral for Smoking Cessation..... | 8-19 |
| 6. Summary..... | 8-21 |
| APPENDIX..... | 8-24 |
| 1. Trends in Predictors of Successful Cessation | 8-24 |
| 2. Smokers Who May Never Quit..... | 8-29 |
| 3. The Role of Workplace and Home Smoking Bans | 8-30 |
| 4. Smoking Cessation Assistance | 8-31 |
| 5. Physician Advice and Referral for Smoking Cessation..... | 8-33 |
| GLOSSARY | 8-35 |
| REFERENCES | 8-36 |

Chapter

8

KEY FINDINGS

Smoking Cessation

Workplace smoking bans, effective in 1995, appeared responsible for major changes in the smoking behavior of Californians. The results summarized below focus on further changes between 1996 and 2002.

Smoking Behavior

- 1) Cigarette consumption level, an indicator of addiction, continues to decrease.** In 2002, over 60% of adult smokers were either non-daily smokers or smoked fewer than 15 cigarettes/day (61.5%), compared to 55.1% in 1996. Nearly 30% (28.2%) of all smokers were non-daily smokers, unchanged from 1999 (29.0 %), but significantly increased from 1996 (24.6%).
- 2) Over 60% of Californians made a quit attempt in 2002, just as they had in 1999.** Quit attempts of a day or longer increased slightly from 56.0% in 1996 to 62.1.9% in 2002, as did those lasting a week or longer (36.1% in 1996 vs. 40.5% in 2002). In 2002, 22.0% of current smokers reported staying off cigarettes for at least a year since they became regular smokers, essentially unchanged from 23.3% in 1996.
- 3) The percentage of smokers both working and living in smoke-free environments increased** from just 3.0% in 1992 to 24.1% in 2002.
- 4) The percentage of smokers who never expect to quit has not increased since 1996.** In 2002, smokers 25 years or older with no quit attempts in the past year and no intention to quit in the future comprised 8.2% of all smokers, not significantly lower than in 1996 (10.0%).

Smoking Cessation Assistance

- 5) The percentage of California quitters using any form of cessation assistance for their most recent attempt has increased significantly since 1996** (24.3% in 2002 vs. 19.8% in 1996). The percent using nicotine replacement therapy in 2002 was 15.7% (significantly increased from 12.7% in 1996), and the percent using an antidepressant was 6.1%, not significantly higher than 5.2% in 1999.
- 6) Almost a third of current smokers have used nicotine replacement therapy at some time (31.6%), including nearly half (47.0%) of moderate-to-heavy daily smokers,** including nearly half of moderate-to-heavy daily smokers (47.0%). Most reported using nicotine replacement therapy to quit (86.4%); however, 7.4% reported using nicotine replacement to tide them over in situations where they couldn't smoke, and 4.0% to cut down on the amount they smoked.
- 7) The effectiveness of nicotine replacement therapy in helping smokers stay quit diminished further in 2002 compared to earlier years,** so that even a short-term benefit is now questionable. On the other hand, these population data suggested that smokers prescribed antidepressants for cessation showed an advantage.
- 8) In 2002, close to 60% of smokers who had visited a physician in the last year received physician advice to quit (57.2 %),** a factor increase of 13.3% from 1996 when this percentage was 50.5%.

Smoking Cessation

Introduction

Encouraging smokers to quit is a major goal of the California Tobacco Control Program. Program efforts to promote cessation have included the use of mass media messages tagged with the telephone number for the California Smokers' Helpline, and funding of cessation programs at the local level. Also, there have been concerted efforts to persuade physicians and other health professionals to advise and assist their smoking patients to quit.

However, quitting smoking is extremely difficult for many smokers and it may take up to 10 years from the time they first seriously think about quitting until they manage to quit for good (Pierce, 1990). Thus, it is important to monitor trends in smoking behaviors that are strongly indicative of future cessation success. A high level of addiction, as indicated by high daily consumption (Fiore et al., 1990; Farkas et al., 1996; Hymowitz et al., 1997; Pierce et al., 1998) or the need to smoke soon after awakening, is associated with a lower likelihood of future successful cessation. An increased likelihood of future successful cessation is associated with a significant history of cessation, off cigarettes for a year or more previously, or a quit attempt lasting for at least a week in the past year (Farkas et al., 1996; Pierce et al., 1998).

In California, important changes in smoking behavior occurred following the law banning smoking in indoor workplaces, which was implemented in 1995 (Gilpin et al., 2001). Heightened awareness concerning the need to protect nonsmokers from secondhand smoke appears to have led many people to prohibit smoking in their homes as well. Adapting to these events resulted in many smokers smoking less. Also, since smoking is less convenient, many more smokers have tried to quit, and those with smoke-free homes tend to stay quit longer (Farkas et al., 1999; Gilpin et al., 1999). If the percentage of smokers subject to smoking bans both in the workplace and at home continues to increase, it is likely that the smoking behavior of Californians will continue to change.

The use of cessation assistance, such as nicotine replacement therapy (NRT) or antidepressants, has demonstrated efficacy in clinical trials (Silagy et al., 2000), although effectiveness for successful cessation in the general population may be more limited (Thorndike et al., 2002; Pierce & Gilpin, 2002). However, in the general population, these aids appear to prolong the duration of quit attempts (Pierce & Gilpin, 2002). Thus, even if a smoker is not successful, an attempt that lasted for a week or longer might still improve the chances for future successful cessation.

Section 1 of this chapter presents the trends in level of addiction and quitting history. Section 2 describes the smokers who never expect to quit and shows that their representation among the remaining smokers is not increasing. Section 3 focuses on the role of smoking restrictions in influencing smoking behavior. Section 4 describes trends

in smokers' use of cessation assistance, including pharmaceutical aids, highlighting promising results for anti-depressants. Section 5 describes trends in physician advice to quit. Section 6 summarizes the results of this chapter.

1. Trends in Predictors of Successful Cessation

As indicated in the introduction, addiction level and quitting history are important behavioral predictors of future successful cessation, and it is important to monitor these indicators over time. Declines in addiction level would herald more future successful cessation, but increases might indicate that smokers who can readily quit already have, leaving behind a pool of California smokers who will find quitting more difficult.

Indicators of Addiction Level

Many smokers reduce their consumption as a prelude to making a cessation attempt (Fiore et al., 1990), even though they might respond when asked that they quit "cold turkey." While lighter smokers are more successful in quitting than heavier smokers, Farkas (1999) showed that smokers who tapered to fewer than 15 cigarettes per day showed a cessation advantage. Smokers who tapered, but not below 15 cigarettes a day, did not show the higher levels of future successful cessation.

This section addresses whether the level of addiction for California smokers is changing. This could occur if more current smokers were non-daily smokers, if daily smokers smoked less, if remaining smokers were heavier smokers (e.g., more lighter smokers have successfully quit), or if new young smokers are smoking at lower levels than before. It also examines whether the percentage of California smokers smoking within 30 minutes of awakening is changing, another important indicator of addiction level (Faegerstrom & Schneider, 1989). In each California Tobacco Survey (CTS), all current smokers were asked the following questions to establish their addiction level.

Daily Smokers:

How many cigarettes on average do you smoke per day?

How soon after you awake in the morning do you usually smoke your first cigarette?

Non-Daily Smokers:

On how many of the past 30 days did you smoke cigarettes?

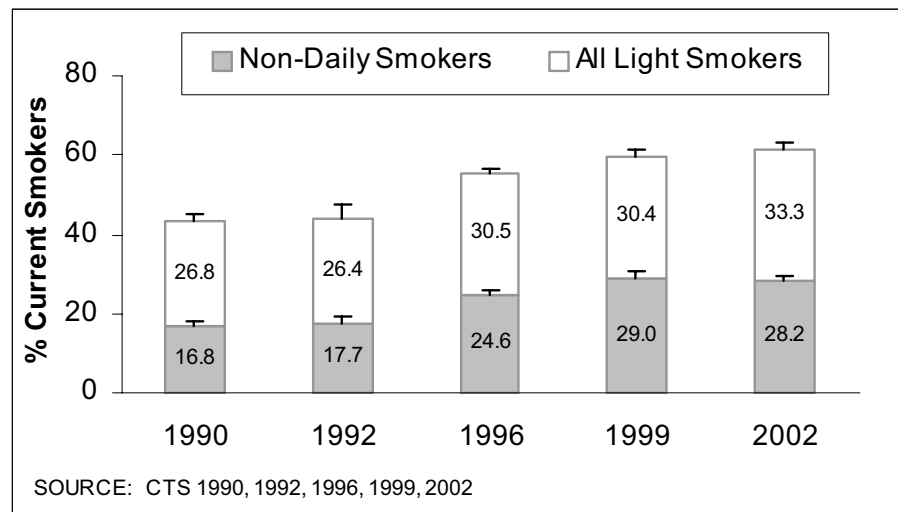
On the past 30 days, on the days that you did smoke, about how many cigarettes did you usually smoke?

For non-daily smokers, daily consumption was computed as the number of days smoked multiplied by the number of cigarettes/day usually smoked on the days when smoking occurred, divided by 30 days. The result was fewer than 15 cigarettes per day for all non-daily smokers, so for the present analysis they were included in the group of light smokers.

In 2002, over 60% of current smokers smoked fewer than 15 cigarettes/day.

Figure 8.1 supports previously reported evidence of progress in reducing the addiction level of smokers. In 1990, 43.6 \pm 1.7% of all current smokers were light smokers. Between 1992 and 1996, this percentage increased substantially. These years bracketed the law mandating smoke-free workplaces, which took effect in 1995. Light smoking has increased modestly each survey year since then. In 2002, approximately half of all light smokers were non-daily smokers, and non-daily smokers accounted for nearly 30% of all current smokers (28.2 \pm 1.5%), unchanged since 1999 (29.0 \pm 1.8%).

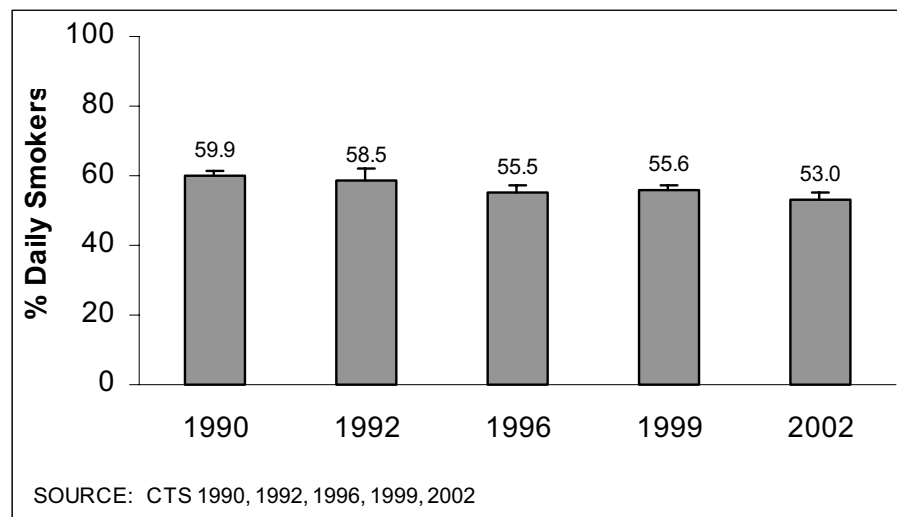
Figure 8.1: Current Smokers Who Smoke <15 Cigarettes/day



Appendix Table A.8.1 provides trends in the demographic characteristics of light smokers in the California population of current smokers. Most groups showed an increase in percentage of current smokers who were light smokers between 1992 and 1996, with modest increases thereafter. In all years, women, young adults, and Hispanics were more likely to be light smokers than other groups.

Figure 8.2 shows the trend in the percentage of daily smokers who smoke within 30 minutes of awakening.

In 1990, about 60% of daily smokers smoked within 30 minutes of awakening, and this percentage had declined significantly by 1996. While in 2002, 53.0 \pm 2.1% of daily smokers smoked within 30 minutes of awakening, this percentage did not differ significantly from the 1996 level.

Figure 8.2: Daily Smokers Who Smoke Their First Cigarette within 30 Minutes of Awakening

The data in this section suggest continued changes in indicators of addiction level among California smokers. Smokers smoke less, more are non-daily smokers, and slightly fewer need to smoke soon after awakening in 2002 compared to earlier years. It is possible that daily smokers are able to get more nicotine from fewer cigarettes and thus maintain their level of addiction. However, very light smokers and those smoking on a non-daily basis may have simply adapted to a lower level of nicotine.

Recent Quitting History

A quit attempt in the past year lasting for at least a week also predicts future successful cessation. The percentage of California smokers trying to quit was determined from the following question:

Were you smoking at all around this time 12 months ago?

Former smokers who answered yes and had a quit date in the past year were also counted as having made an attempt in the past year.

The CTS asked current smokers the following questions:

During the past 12 months, have you quit smoking intentionally for one day or longer?

How long did you actually stay off cigarettes during that {most recent} attempt?

Was this last attempt the longest one you made in the last 12 months?

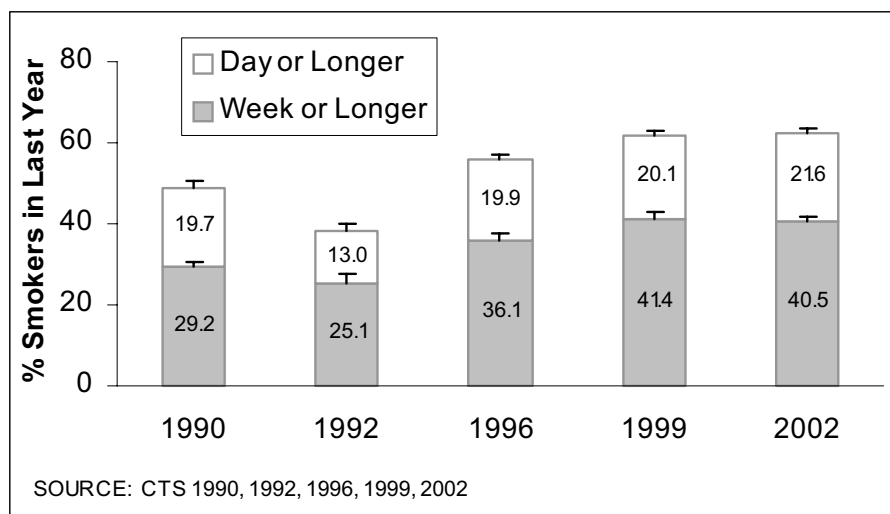
How long was your longest quit attempt in the last 12 months?

To compute the percentage of smokers “in the last year” making a quit attempt, the denominator included all current smokers and former smokers who were smoking 12 months ago; and the numerator included the former smokers together with the current smokers who answered yes to the question about quitting for a day or longer.

In 2002, over 60% of California smokers in the last year made a quit attempt lasting a day or longer, and over 40% stayed off a week or longer.

Figure 8.3 shows the percentage of smokers in the last year who made a quit attempt that lasted for at least a day for each CTS. The shaded portion of the bar shows the percentage of smokers in the last year who managed to stay off cigarettes for a week or longer on their longest quit attempt in the past 12 months.

Figure 8.3: Quit Attempts Among Smokers in the Last Year



Similar to the increase in light smoking, quitting increased markedly and significantly from 1992 to 1996. The increase in 1999 was also significant, but the slight increase from 1999 to 2002 was not. Nevertheless, over 60% of California smokers made a quit attempt in 2002, just as they had in 1999. Further, in 1996, 36.1% of smokers managed to stay off cigarettes for a week or longer, and this percentage increased significantly to 40.5% in 2002.

Demographic trends for smokers with quit attempts in the last year are presented in Appendix Tables A.8.2 (1+ days) and A.8.3 (1+ weeks). Young adults attempt to quit more than other age groups, and Non-Hispanic Whites quit less than other racial/ethnic groups.

Both the percentage of smokers who are light smokers and the percentage making a quit attempt lasting a week or longer increased after indoor workplaces were required to be smoke-free in 1995. This period also showed a large increase in the percentage of smokers reporting smoke-free homes (see Chapter 6). Perhaps smokers subject to these

restrictions adapted their smoking behavior to the prevailing conditions after 1995 relatively early on, so that large changes have not been observed in subsequent years.

Life-time Quitting History

A history of quitting for at least a year sometime in the past is also related to success in quitting in the future (Farkas et al., 1996). The 1996, 1999, and 2002 CTS asked smokers the following question:

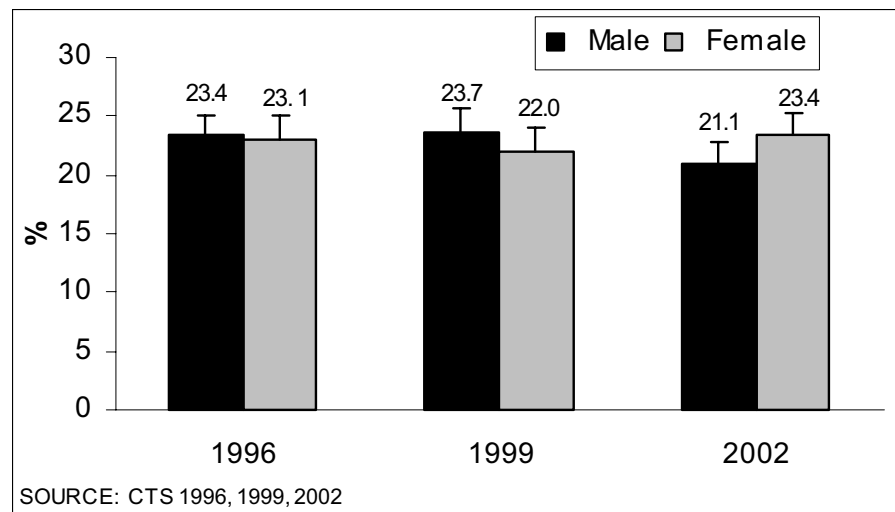
Since you started smoking regularly, what is the longest time you have ever gone without smoking a cigarette?

The answer to this question could be given in hours, days, weeks, months, or years.

Overall, in 2002, $22.0 \pm 1.3\%$ of current smokers indicated that they had managed to stay off smoking for at least a year since beginning to smoke regularly, essentially unchanged from $23.3 \pm 1.4\%$ in 1996. Since this question was not asked prior to the smoke-free workplace law, it is unknown whether the level in 1996 represents an increase from before the legislation was passed.

Figure 8.4 shows the percentages of smokers who have stayed off cigarettes for at least a year by gender.

Figure 8.4: Current Smokers Who Have Stayed Off Cigarettes for a Year or Longer



Report of a quit attempt lasting for a year or longer in the past did not differ by gender, so longer-term cessation success is probably not worse for women than for men, as some studies have suggested (USDHHS, 2001). Appendix Table A.8.4 shows the demographic trends in the percentages of smokers who have managed to stay off cigarettes for at least a year in the past. Middle-aged smokers were more likely to report a long quit attempt, probably because they have had longer in their smoking career to make such an attempt.

Smokers with less than a high school education were less likely to report a lengthy quit attempt in the past.

These data indicate that a return to smoking following a long quit attempt is not an unusual event, which further underscores the difficulty some smokers face in quitting for good. Strategies for preventing relapse among even longer-term former smokers is an area where further research is needed.

Lapses Among Former Smokers

Remaining abstinent for at least a year is considered a marker of successful cessation (Schwartz, 1987; Gilpin et al., 1997), but as seen above, many current smokers had achieved this milestone and still relapsed to smoking. Previous research indicates that smoking a cigarette after a formal quit is highly related to cessation failure (Borland, 1990; Garvey et al., 1992). In one study, 95% of smokers who lapsed returned to regular smoking (Garvey et al., 1992). However, little is known about how frequently such lapses occur among former smokers in the general population.

Data from the 2002 CTS were used to examine smoking after former smokers indicated that they ceased regular smoking. Former smokers were asked the following questions:

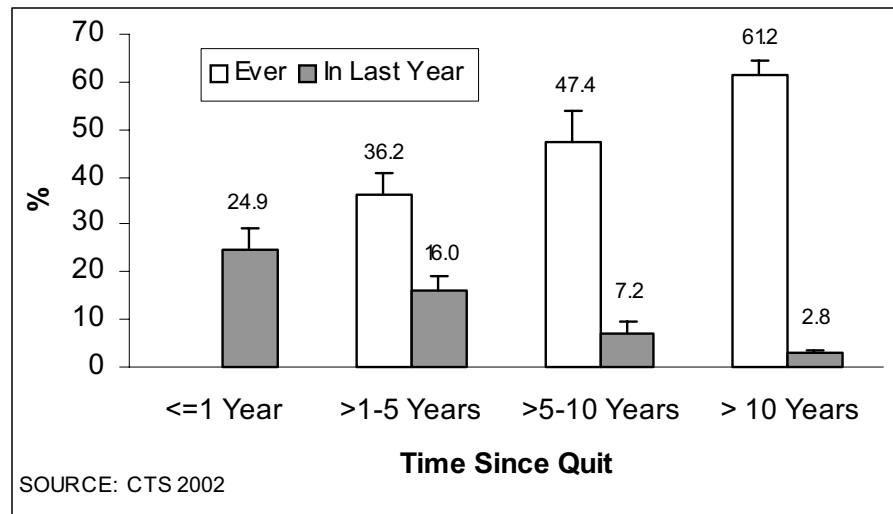
When did you last smoke regularly?

When did you last smoke or have a puff on a cigarette?

Respondents provided a date as the answer to each question, and for many former smokers the two dates were the same. If the date of the answer to the second question was more than 14 days following the date given for the first question, the smoker was considered to have experienced a lapse. Overall, by this criterion, $52.1 \pm 2.1\%$ of former smokers had experienced a lapse.

Figure 8.5 classifies former smokers according to how long it had been since they quit smoking regularly and shows the percentage in each group with a lapse ever and with a lapse in the last year for each group.

As the length of time a former smoker had been quit increased, so did the percentage reporting a lapse, likely because there was more time for a lapse to have occurred. Also, as cessation duration increased, the chances that the former smoker had a lapse in the year before the survey decreased. Note that a relatively large proportion of smokers in the >1 to 5 years of cessation group had smoked a cigarette in the past year.

Figure 8.5: Former Smokers with Lapses by Time of Cessation of Regular Smoking

Since over half of California former smokers reported a lapse and remained former smokers, a lapse does not necessarily lead to relapse. However, many of these may have been among the 5% of lapsers who do not relapse (Garvey et al., 1992), and undoubtedly, a few, particularly those quit more recently, may still relapse. Whether the lapse was an isolated event or a pattern of casual smoking is a subject for future research. Also of interest is whether the pattern described above for California former smokers is typical for former smokers in general, or whether it is unique to the environment in California, where smokers are perhaps subjected to more societal pressure to quit. Some smokers may quit because of social pressure when they really would have preferred to continue smoking. Perhaps these former smokers indulge in a cigarette now and then, but manage not to relapse because of the social pressure.

2. Smokers Who May Never Quit

The percentage of smokers who never expect to quit has not increased since 1996.

Previously, a group of current smokers was identified that had neither a recent quitting history (no quit attempt in the past year) nor any intention to quit in the future (Emery et al., 2000). These smokers explicitly stated that they never expected to quit, and because of this attitude they are sometimes referred to as “hard core” smokers. Perhaps a more accurate label is simply smokers who may never quit, either because they would like to quit but don’t think they can, or because they like to smoke and discount the threat to their health. Smokers 25 years of age and younger were excluded from the “hard core” categorization because many are still engaged in the smoking uptake process.

As shown in **Figure 8.6**, in each survey year, less than 2% of all Californians and 10% or less of all smokers over age 25 years were in this category. In 2002, there were approximately 267,000 smokers who never expected to quit. The percentage of smokers who never expect to quit has declined since 1996, but the difference by 2002 was not

significant. The trends in demographics of the group who never expects to quit are shown in Appendix Table A.8.5. Older smokers and those with lower incomes and less education tend to be more represented in the group of smokers who never expect to quit.

Figure 8.6: Smokers Who Never Expect to Quit

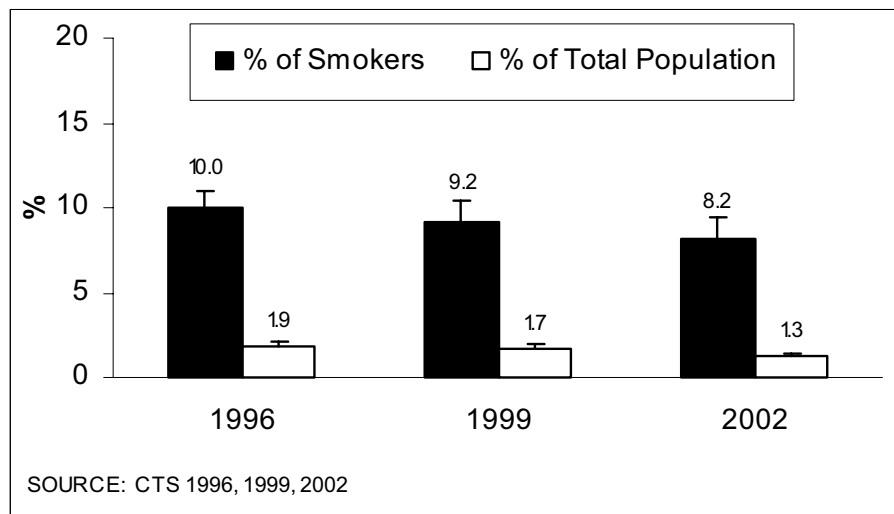
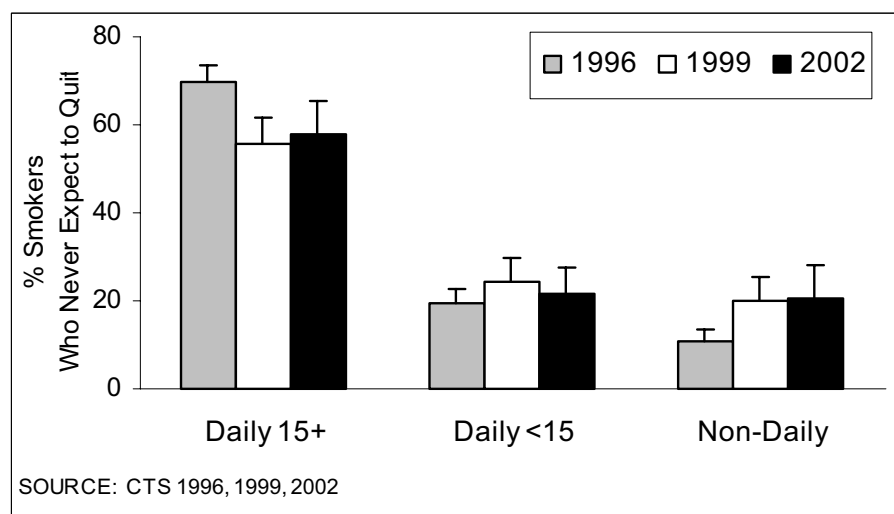


Figure 8.7 shows the level of smoking for the smokers who never expect to quit. While there was a significant decline between 1996 and 1999 in the percentage of moderate-to-heavy (>15 cigarettes/day) smokers, with corresponding increases in light smokers and non-daily smokers, between 1999 and 2002, there were no significant changes in these groups.

Figure 8.7: Smoking Level among Smokers Who Never Expect to Quit



| | 1996 | 1999 | 2002 |
|-----------|------|------|------|
| Daily 15+ | 69.7 | 55.7 | 58.1 |
| Daily <15 | 19.7 | 24.5 | 21.6 |
| Non-Daily | 10.7 | 19.8 | 20.4 |

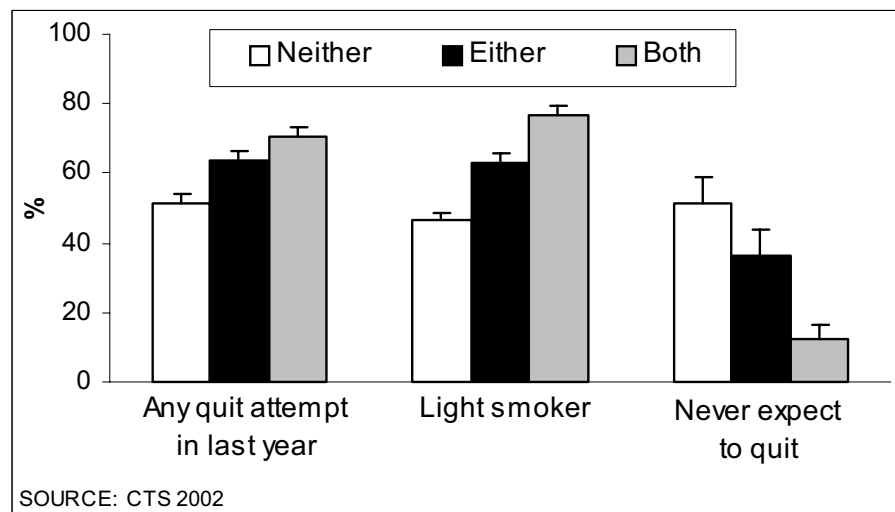
In 2002, 42.0% of smokers who never expect to quit were non-daily smokers, or, if daily smokers, they smoked fewer than 15 cigarettes/day. In general, light smokers are more likely to successfully quit in the future. Providing the needed motivation to quit for this group is an ongoing tobacco control challenge. The decline in moderate-to-heavy smoking in this group indicates that the remaining smokers that never expect to quit are not necessarily more addicted or more “hard core.”

3. The Role of Workplace and Home Smoking Bans

Previous research has shown that smokers who work or live where smoking is banned may be more likely to modify their smoking behavior in ways that will increase the probability of successful cessation in the future (Gilpin et al., 1999; Farkas et al., 1999). The inconvenience of not being able to smoke whenever they desire may motivate smokers to try to quit. As they spend a significant portion of their day in an environment where they cannot smoke, some smokers will naturally consume fewer cigarettes. Although light smokers generally are more able to quit, it is possible that some smokers who manage to reduce their consumption to only a few cigarettes per day may have a more difficult time quitting. Their few cigarettes are rewards, very pleasurable and difficult to give up (Shiffman et al., 1994).

Figure 8.8 illustrates this association with data from the 2002 CTS. For various groups of smokers the figure gives the percentage with neither a work nor home smoking ban, one of these bans, or both types of bans. In this analysis, smokers who are not employed or who do not work indoors are considered not subject to a workplace ban.

Figure 8.8: Smoking Bans at Work and at Home and Quitting Behavior in 2002



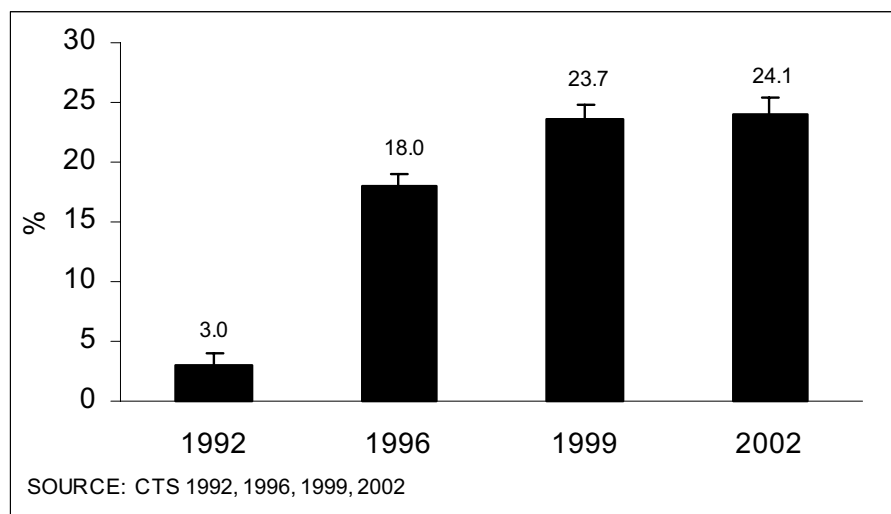
| | Neither | Either | Both |
|-------------------------------|---------|--------|------|
| Any quit attempt in last year | 51.5 | 64.0 | 70.3 |
| Light smoker | 46.6 | 63.2 | 76.8 |
| Never expect to quit | 51.1 | 36.5 | 12.4 |

In 2002, the likelihood that a smoker (includes former smokers) made a quit attempt in the past year was significantly higher if the smoker either lived or worked where there were smoking bans, particularly if they experienced both types of bans. This same pattern was observed for current smokers with respect to smoking <15 cigarettes/day (light smokers). In contrast, very few of the smokers who never expect to quit (see Section 2) were subject to both types of smoking bans.

In 2002, about a quarter of California smokers both lived and worked in smoke-free environments.

Figure 8.9 shows the percentage of California smokers who both work and live in smoke-free environments for 1992 through 2002. Before the law banning smoking in indoor workplaces, only 3.0% of Californians both lived and worked in a smoke-free environment. This percentage jumped to 18.0% in 1996, after the law was implemented, and had increased to nearly one quarter of California smokers by 1999 and remained at this level in 2002 (24.1%).

Figure 8.9: Smokers Both Working and Living in Smoke-free Environments



Trends in the demographics of smokers who both live and work under smoking bans are presented in Appendix Table A.8.6. Younger adult smokers, more likely to be in the workforce, showed higher rates of being subject to both types of bans. While African Americans showed the lowest rates of reporting both types of bans, the Asian/PI group generally had the highest rates. More educated smokers and those with higher household incomes were more likely to be subject to both types of smoking bans.

The modestly increasing percentages of smokers subject to both workplace and home smoking bans since 1996 may well be the impetus for the small but steady changes in smoking behavior documented earlier in this chapter.

4. Smoking Cessation Assistance

In the 1980s, only about 10% of smokers sought assistance when they tried to quit, but by 1996 in California, the percentage seeking assistance approached 20% (Zhu et al., 2000). Cessation assistance can range from obtaining self-help materials, participating in group counseling or a commercial or public-service smoking cessation program, having one-on-one counseling, or using pharmaceutical aids such as nicotine replacement therapy (NRT) or antidepressants.

Nicotine polyacrilex gum became available for use by prescription in the mid-1980s, and was made available without a physician's prescription beginning in 1996. The nicotine patch became available for use by prescription in January 1992 and "over the counter" in July 1996. In 1999, physicians could prescribe a nicotine inhalant. *Clinical Practice Guidelines* recommend that cessation interventions include nicotine replacement therapies whenever appropriate (USPHS, 2000). The use of the antidepressant Zyban, or bupropion, has also demonstrated efficacy in clinical trials (Silagy et al., 2000; Richmond & Zwar, 2003).

Trends in the Use of Cessation Assistance

The 1992, 1993, 1996, 1999, and 2002 CTS asked smokers who had tried to quit in the last year the following question concerning the use of cessation assistance with their most recent quit attempt:

Did you use counseling advice or self-help materials to adjust to life without cigarettes? (all CTS)

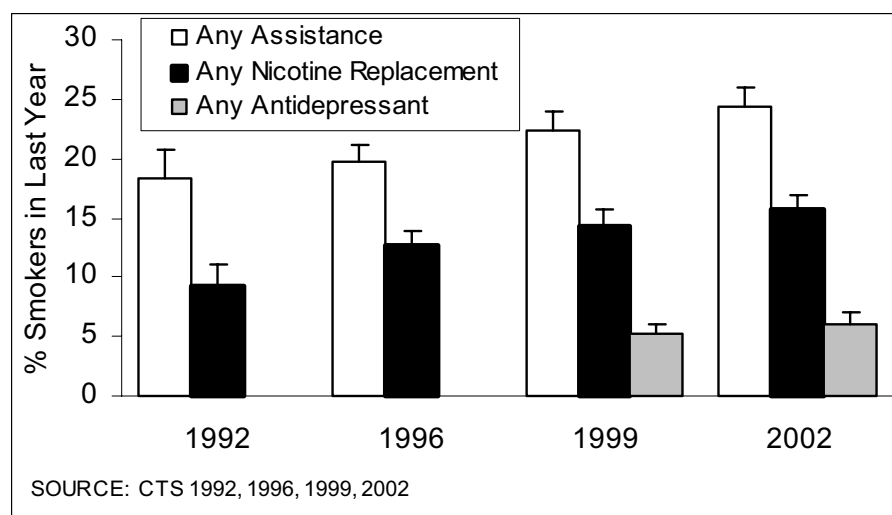
For this last quit attempt, did you use a nicotine substitute such as...? (1996, 1999, and 2002 CTS)

For this last quit attempt, did you use an antidepressant prescribed by your physician to help you to quit such as...? (1999 and 2002 CTS)

In 2002, 24.3% of smokers used some form of cessation assistance during their most recent quit attempt, a significant increase since 1996.

For those who indicated they had assistance, further questions probed the use of group counseling, one-on-one counseling, self-help materials, nicotine gum or the patch, and, in 1999 and 2002, the use of a nicotine inhalant and of antidepressants such as Zyban.

Figure 8.10 shows the percentages of California smokers using various forms of cessation assistance for their most recent quit attempt in the last year from 1992 to 2002. Smokers could have used more than one type of cessation assistance. The left-most bar in each year indicates the use of any form of cessation assistance.

Figure 8.10: Use of Cessation Assistance at Most Recent Quit Attempt

| | 1992 | 1996 | 1999 | 2002 |
|--------------------------|------|------|------|------|
| Any Assistance | 18.4 | 19.8 | 22.3 | 24.3 |
| Any Nicotine Replacement | 9.3 | 12.7 | 14.4 | 15.7 |
| Any Antidepressant | | | 5.2 | 6.1 |

Over the period illustrated, the use of any type of assistance increased by a factor of 33.5%, and the use of NRT increased by a factor of 68.8%. The increase in the use of NRT between 1992 and 1996, when it became available over-the-counter, was significant. While the use of NRT also increased slightly between 1996 and 1999 and again between 1999 and 2002, only the difference between the 1996 and 2002 rates was statistically significant.

Appendix Table A.8.7 shows the use of NRT by demographic groups of smokers from the 1992, 1996, 1999, and 2002 CTS. More female than male smokers used NRT for their most recent quit attempt. Older smokers were more likely to use NRT than younger smokers. Hispanic smokers were, in general, less likely to use NRT than other racial/ethnic groups. Smokers with higher incomes were also more likely to use NRT.

Use of NRT for Reasons Other than Cessation

Recently, there is increased interest in a group of smokers that some say either cannot or will not quit (Stratton et al., 2001). Section 2 of this chapter indicates that this group may not be a large percentage of current smokers, at least in California. Nonetheless, there is pressure to make available to such smokers existing and new nicotine replacement products for the purpose of long-term nicotine maintenance. The idea is to satisfy the users' craving for nicotine without exposing them to the harmful effects of cigarettes. However, there is little evidence that smokers use existing NRT products in this manner, although one study showed that some smokers report using NRT in settings where they cannot smoke (Thorndike et al., 2002).

To explore this issue in the California population, the 2002 CTS asked all current smokers whether they had ever used NRT and why:

Have you ever used a nicotine substitute (e.g., patch, gum, inhaler or lozenge)?

Why did you use it?

Smokers could give more than one reason for using NRT.

Table 8.1 shows the reasons cited for use of NRT by the smokers' consumption level. Overall, 31.6 (±1.5)% of current smokers had ever used NRT, and the vast majority cited cessation as one of their reasons.

Overall use of NRT differed according to consumption level, which is consistent with previous studies indicating that it is the more addicted smokers that seek smoking cessation assistance of all types (Fiore et al., 1990; Pierce et al., 1995; Zhu et al., 2000).

| Table 8.1 | | | | | |
|--|--------------------------------|-------------------------------|-------------------------------|------------------------------|-------------------------------|
| Cigarette Consumption and Ever NRT Use of Current Smokers | | | | | |
| | | Have Used NRT (n=1914) | | | |
| | Ever Used NRT % | To Quit % | To Tide Over % | To Cut Down % | Just Curious % |
| Overall | 31.6 (±1.5) | 86.4 (±2.1) | 7.4 (±1.6) | 4.0 (±1.0) | 4.2 (±1.0) |
| Consumption (current) | | | | | |
| Occasional | 16.3 (±2.3) | 83.3 (±5.7) | 4.6 (±2.5) | 4.4 (±3.5) | 4.6 (±2.6) |
| Daily <15 | 26.9 (±3.0) | 86.5 (±3.3) | 5.2 (±2.1) | 2.7 (±1.4) | 5.5 (±2.2) |
| Daily 15+ | 47.0 (±2.2) | 87.1 (±2.7) | 9.2 (±2.1) | 4.6 (±1.5) | 3.4 (±1.1) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 2002

Yet, regardless of consumption level, about the same percentage of ever users said that quitting was one reason they used NRT. In contrast, moderate-to-heavy daily smokers were more likely than other smokers to say that they used NRT to tide them over in situations where they could not smoke.

The results presented above indicate that relatively small percentages of ever NRT users used it to tide them over or to cut down. However, until very recently, NRT has been advertised exclusively as a cessation aid. One published article suggests that NRT may be useful in helping smokers cut down (Etter et al., 2002). Whether demand for NRT will increase if NRT does prove useful for reducing consumption and if NRT products are widely advertised for purposes other than cessation, is unknown. Using a nicotine substitute for any purpose could be considered by some smokers as an acknowledgement of the extent of their addiction problem, something they may be reluctant to do.

Effectiveness of Pharmaceutical Aids

Numerous controlled clinical trials of nicotine replacement therapy (NRT) and of the antidepressant bupropion indicated up to two-fold efficacy for these pharmaceutical aids compared to placebo in helping smokers quit (Silagy et al., 2000). However, efficacy demonstrated in clinical trials does not always translate into effectiveness in the general population. Analyses of data from the 1992, 1996, and 1999 CTS indicated an apparent decline in the effectiveness of NRT products in the California population of moderate-to-heavy smokers (≥ 15 cigarettes/day) trying to quit, when NRT became generally available over-the-counter in 1996 (Pierce & Gilpin, 2002). There is little evidence that NRT is effective for lighter smokers (Silagy et al., 2000).

Table 8.2 illustrates the decline in effect over time for moderate-to-heavy smokers (≥ 15 cigarettes/day) a year before the survey using NRT, compared to those not using any pharmaceutical aid. It is important to remember that smokers who choose to use NRT are generally the heavier, more addicted smokers, and that the analyses presented in this section of just the heavier smokers may not completely account for differences in who chooses to use pharmaceutical aids.

| Table 8.2 The Population Effectiveness of Nicotine Replacement Therapy (NRT) in Moderate-to-Heavy Smokers (>15 cigarettes/day): Actuarial Percentage Still Abstinent at 1, 3, and 6 Months | | | | |
|---|---------------|---------|----------|----------|
| Year | Condition | 1 month | 3 months | 6 months |
| 1992 | NRT | 49 | 38 | 29 |
| | No NRT | 34 | 25 | 20 |
| | % Improvement | 43 | 53 | 45 |
| 1996 | NRT | 47 | 33 | 25 |
| | No NRT | 33 | 24 | 19 |
| | % Improvement | 45 | 46 | 34 |
| 1999 | NRT | 48 | 29 | 21 |
| | No NRT | 36 | 25 | 20 |
| | % Improvement | 33 | 15 | 5 |
| 2002 | NRT | 35 | 22 | 16 |
| | No NRT | 29 | 19 | 15 |
| | % Improvement | 21 | 16 | 7 |

TABLE ENTRIES, EXCEPT % IMPROVEMENT, ARE WEIGHTED, ACTUARIAL ABSTINENCE RATES.
SOURCE: CTS 1992, 1996, 1999, 2002

Compared to 1996 when some quitters still obtained NRT by prescription and others bought it over-the-counter, in 1999, the early effect (% improvement) at one month was smaller, diminished greatly at three months, and was barely discernable at six months. In 2002, the early effect is further diminished, and by three months there is little discernable effect. Thus, it appears that the effectiveness of NRT in the general population is continuing to decline compared to when it was obtainable only by prescription.

As described earlier in the chapter, some smokers used antidepressants to help them quit, and some used both NRT and an antidepressant. **Figure 8.11** shows the actuarial relapse

curves for moderate-to-heavy smokers using any pharmaceutical aid compared to those using no aid. In contrast to the relapse results for NRT alone in 2002 (Table 8.2), there appears to still be a slight effect for use of any pharmaceutical aid at three months.

This apparent effect for use of any pharmaceutical aid in light of no discernable effect for NRT alone suggests that it was antidepressants that helped smokers stay off cigarettes longer.

Figure 8.11: Time To Relapse for Most Recent Quit Attempt by Use of Pharmaceutical Aid

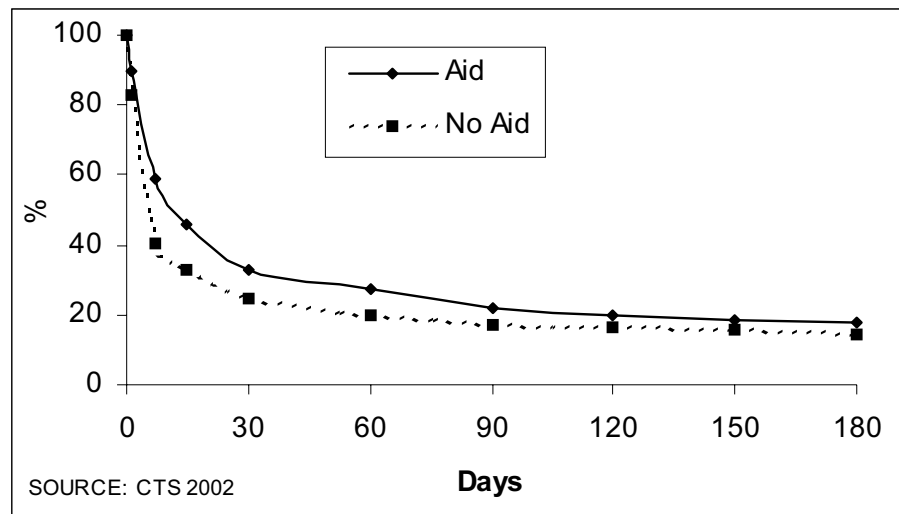


Table 8.3 shows the results of an analysis for use of antidepressants (regardless of NRT use). Since the percentage of quitters using antidepressants was small in both 1999 and 2002, the data for both years were combined.

| Table 8.3 The Population Effectiveness of Antidepressants in Moderate-to-Heavy Smokers (>15 cigarettes/day): Percentage Still Abstinent at 1, 3, and 6 months. | | | |
|--|---------|----------|----------|
| | 1 month | 3 months | 6 months |
| Antidepressant | 58 | 34 | 24 |
| No Antidepressant | 34 | 23 | 20 |
| % Improvement | 71 | 46 | 20 |

TABLE ENTRIES, EXCEPT % IMPROVEMENT, ARE WEIGHTED ACTUARIAL ABSTINENCE RATES.
SOURCE: CTS 1999, 2002

Even at six months, antidepressant users appear to show an advantage in maintaining abstinence compared to those not using an antidepressant. The difference in abstinence

rates at three months for users and nonusers was statistically significant, but it was only marginally significant at six months.

The analysis of Table 8.3 was repeated omitting the NRT users from the sample and the results were similar, as were the results of an analysis that considered only Zyban users. However, with diminished sample sizes, the differences at three and six months were not statistically significant.

While antidepressants will not assure that any smoker who tries to quit will be successful, they appear to give quitters in the general population an advantage in their quest for successful cessation. Whether this effectiveness will continue or diminish as it did as for NRT needs to be monitored. It is possible that physicians are prescribing antidepressants for smokers who would be the most likely to benefit. As the pool of smokers who are prescribed antidepressants becomes larger, it may include some for whom the benefit is marginal.

5. Physician Advice and Referral for Smoking Cessation

Physician advice has the potential both to encourage a quit attempt and to influence the use of assistance in that quit attempt (Fiore et al., 1990). In California, the CTS consistently indicate that about 70% of smokers visit their physician at least once in any given year, so there is opportunity for a brief physician intervention to encourage smokers to quit.

The 1990, 1992, 1996, 1999, and 2002 CTS asked all current and recent former smokers who had visited a physician in the past year the following question:

In the last 12 months did a doctor (in the last 12 months before you quit, did a doctor) advise you to stop smoking?

And in 2002, those who answered negatively were asked the following question:

In the last 12 months {in the last 12 months before you quit}, did another health professional advise you to stop smoking?

Further, in the 1996, 1999, and 2002 CTS, this group of smokers was also asked the following questions:

In the last 12 months did a doctor (in the last 12 months before you quit, did a doctor) refer you to, or give you information on a smoking cessation program?

Did you try to quit when your doctor advised you to stop smoking?

Figure 8.12 shows the percentage of California smokers who reported that they had received this intervention from their physicians.

Since 1990, physician advice to quit increased significantly by a factor of 43.4%, and between 1996 and 2002, it increased by a factor of 13.3%. The percentage who were also

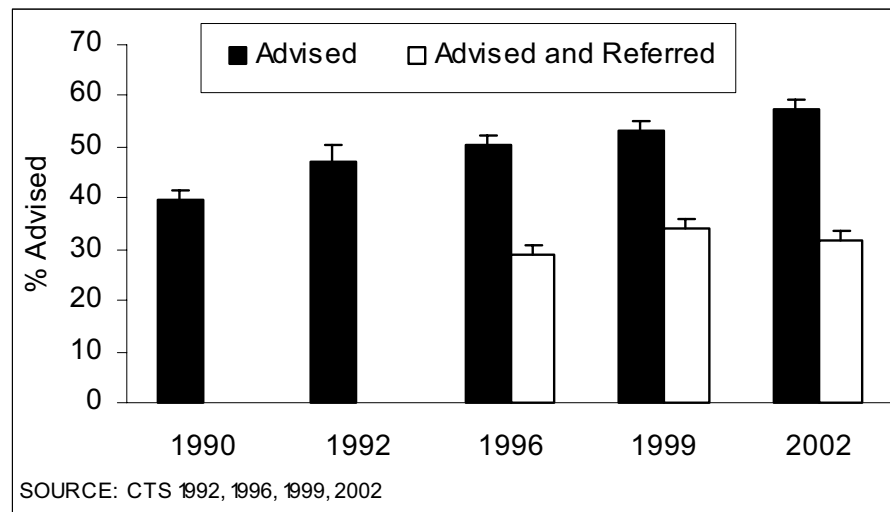
referred by their physician to a cessation program increased significantly between 1996 and 1999, but then decreased nonsignificantly in 2002.

In 2002, close to 60% of California smokers with a physician visit in the last year were advised to quit by their physicians.

In 2002, an additional $7.1 \pm 1.2\%$ of smokers who did not indicate that their physician advised them to quit reported receiving such advice from another health professional, $3.4 \pm 1.0\%$ from a nurse-practitioner or physician's assistant and $1.5 \pm 0.6\%$ from a dentist.

Many smokers advised by a physician may also have been advised by another health professional.

Figure 8.12: Smokers Advised by Their Physicians to Quit



| | 1990 | 1992 | 1996 | 1999 | 2002 |
|----------------------|------|------|------|------|------|
| Advised | 39.0 | 47.3 | 50.5 | 53.2 | 57.2 |
| Advised and Referred | | | 28.8 | 34.2 | 31.6 |

Studies have shown that physicians tend to advise smokers with high cigarette consumption more than other smokers (Frank et al., 1991; Gilpin et al., 1993). However, with larger percentages of smokers being advised in recent years, perhaps a relatively greater percentage of lighter smokers are being included.

Table 8.4 shows the trend in rate of physician advice by the smokers' cigarette consumption level. In each year, the moderate-to-heavy smokers were more likely to be advised than light daily or non-daily smokers, and the factor increase between 1996 and 2002 was about the same and significant for both moderate-to-heavy and light daily smokers. The change over this period was not significant for the non-daily smokers.

| Table 8.4 Cigarette Consumption and Physician Advice to Quit | | | | |
|---|-------------|-------------|-------------|------------------------------|
| | 1996 % | 1999 % | 2002 % | Factor Increase 1996-2002 |
| Consumption (current) | | | | |
| Non-daily | 40.3 (±3.5) | 40.0 (±3.0) | 43.2 (±3.4) | 7.2 |
| Daily <15 | 52.3 (±3.0) | 56.9 (±3.7) | 61.7 (±3.2) | 18.0 |
| Daily 15+ | 58.4 (±2.3) | 65.2 (±2.7) | 68.1 (±3.2) | 16.6 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1996, 1999, 2002

In 1996, 31.9±3.6% of smokers with advice/referral stated that they tried to quit as a result, and this percentage increased (not significantly) to 37.3±3.3% in 2002.

In both 1999 and 2002, the percentage of smokers who obtained cessation assistance for their most recent quit attempt was higher for those who were both advised and referred to a smoking cessation program than for those only advised. The percentages were similar for both years; about 43% of those advised and referred obtained assistance for their most recent quit attempt compared to about 26% of those only advised, and about 19% of those not advised. It is not known whether the most recent quit attempt was the one prompted by the physician intervention. However, it appears that physician intervention may be fostering the use of assistance.

The demographics of smokers reporting that they were advised to quit by their physicians are shown in Appendix Table A.8.8. Female smokers were advised by their physicians to quit more than males, and the percentage advised increased with age. Hispanic smokers were not advised as much as other racial/ethnic groups, perhaps, in part, because they tend to be lighter smokers.

6. Summary

Level of addiction and quitting history are predictors of future successful cessation. After the law banning smoking in indoor work areas in 1995, these characteristics of smoking behavior changed markedly by 1996. As documented in this chapter, these behaviors have continued to change since then, but at a much reduced rate, perhaps representing a longer-term adaptation to an environment in California that protects the nonsmoker. On the other hand, the more recent smaller changes could reflect more smokers becoming subject to smoking bans both at work and in the home.

The number of cigarettes smoked is one indicator of addiction, and consumption has declined further since 1996. In 2002, 61.5±1.5% of adult smokers were either non-daily smokers or smoked fewer than 15 cigarettes/day, significantly higher than the 55.1±1.4% of all smokers who were light smokers in 1996. Nearly 30% (28.2±1.5%) of all smokers in 2002 were non-daily smokers, significantly increased from 1996 (24.6±1.5%). There has also been slow and steady decline in the percentage of smokers who smoke within the first 30 minutes of awakening, another indicator of addiction, from 59.9±1.6% in 1990 to

53.0±2.1% in 2002. Taken together, these findings suggest that the current pool of California smokers has reduced their addiction level and is not more “hard core” than smokers were in the early 1990s.

Many California smokers are actively engaged in the smoking cessation process. Quit attempts of a day or longer increased slightly but significantly from 56.0±1.1% in 1996 to 62.1±1.2% in 2002, as did the percentage of smokers with an attempt lasting a week or longer (36.1±1.3% in 1996 vs. 40.5±1.5% in 2002). The percentage of current smokers who have stayed off cigarettes for a year or longer since starting to smoke regularly has remained constant at about 22-23% from 1996 to 1999. Many former smokers are still struggling to remain abstinent, and 16.0±3.1% of those quit between 1 and 5 years, had smoked a cigarette in the last year.

Smokers who are not trying to quit and who say they never expect to quit are not becoming a larger fraction of remaining smokers. In 1996, this group comprised 10.0±1.0% of all smokers and in 2002 it comprised 8.2±1.1%. Even among this group, in 1999 and 2002 more were non-daily smokers than in 1996. In 2002, over 40% were light smokers (including non-daily), who perhaps think that they are smoking at levels that will not endanger their health. If motivated, these smokers should have an easier time quitting than heavier smokers. In 2002, only 12.4±4.4% of smokers who never expect to quit were subject to both workplace and home smoking restrictions.

Since quitting smoking may be made more difficult for smokers because of attractive tobacco industry promotional offers (Chapters 9 and 10), smoking cessation assistance is likely necessary to counteract these industry influences. In 2002, the percentage of California quitters using any form of cessation assistance for their most recent attempt in the last year was 24.3±1.6%, a significant increase from 1996 (19.8±1.4%). The percent using nicotine replacement therapy in 2002 was 15.7±1.3% (significantly increased from 12.7±1.1% in 1996), and the percent using an antidepressant was 6.1±0.8%, slightly increased from 5.2±0.9% in 1999, when this form of assistance was first queried by the CTS.

In 2002, the percentage of current smokers who have ever used nicotine replacement therapy was 31.6±1.5%. Most reported using NRT in a quit attempt (86.4±2.1%); however, 7.4±1.6% reported using nicotine replacement to tide them over in situations where they couldn't smoke, and 4.0±1.0% to cut down on the amount they smoked.

CTS data from 1992, 1996, and 1999 documented declining effectiveness of NRT in the general population of smokers trying to quit, after it became available “over the counter” in 1996. The population effectiveness of NRT in helping smokers stay quit diminished further in 2002 compared to earlier years, so that even a short-term benefit was questionable. However, an analysis that combined data from the 1999 and 2002 CTS suggested that antidepressants for cessation showed population effectiveness. At three months following cessation, significantly more antidepressant users (by a factor of 46%) were still abstinent compared to nonusers.

About 70% of smokers visit their physician each year, so physician advice to quit is potentially an important smoking-cessation intervention. In 2002, $57.2 \pm 2.0\%$ of smokers who had visited a physician in the last year reported receiving physician advice to quit, a factor increase of 13.3% from 1996 when this percentage was $50.5 \pm 1.8\%$. However, referral to a smoking cessation program did not increase significantly between 1996 ($28.8 \pm 1.8\%$) and 2002 ($31.6 \pm 1.9\%$). Moderate-to-heavier smokers continue to report being advised more than light smokers. In 2002, $37.3 \pm 3.3\%$ of smokers who reported physician advice or referral said that they made a quit attempt as a result, increased from 1996 ($31.9 \pm 3.6\%$) but not significantly.

The findings of this chapter indicate further changes in smoking behavior since 1996 that reflect smokers' possible continued adaptation to smoking restrictions in California. Lower levels of addiction and increased quit attempts lasting at least a week definitely indicate that the pool of remaining smokers in the California population are not more "hard core." These positive changes in smoking behavior and cessation attempts should portend more successful cessation in the future.

Chapter

8

APPENDIX
Smoking Cessation

The tables described below presents in detail the main chapter results for demographic groups of smokers. Since many of the major changes occurred by 1996, after the law banning smoking in indoor workplaces was implemented, changes in the adaptation of smokers since then are of primary interest. Thus, most of the Appendix tables show change between 1996 and 2002.

1. Trends in Predictors of Successful Cessation

Table A.8.1 shows the percentage of light smokers for each demographic group of current smokers. Significantly more women were light smokers than men in each year, and both men and women showed significant increases in the rate of light smoking between 1996 and 2002. Also, the majority of young adult smokers (18- to 24-year-olds) were light smokers in each year. While the percentage of young adults who are light smokers has remained mostly constant since 1996, this percentage had increased significantly in each of the older age groups by 2002.

Minorities, particularly Hispanics, were significantly more likely to be light smokers in each year than Non-Hispanic Whites. However, the percentage of Non-Hispanic White smokers who are light smokers had increased significantly in 2002 compared to 1996.

Further, in 2002, college graduates (16+) were significantly more likely to be light smokers than those who graduated high school or had some college. Except for those who never graduated high school, all other groups significantly increased their rates of light smoking between 1996 and 2002. There were no remarkable differences among income groups.

| Table A.8.1 Percentage of Current California Smokers Smoking <15Cigs/day | | | | | | |
|--|--------------|--------------|-------------|-------------|-------------|-------------------------------|
| | 1990 % | 1992 % | 1996 % | 1999 % | 2002 % | Factor Change 1996-2002 |
| Total | 43.6 (∂1.7) | 44.1 (∂3.7) | 55.1 (∂1.4) | 59.4 (∂1.7) | 61.5 (∂1.5) | 11.6 |
| Gender | | | | | | |
| Male | 39.8 (∂2.0) | 42.4 (∂3.6) | 53.1 (∂1.9) | 58.0 (∂2.1) | 59.7 (∂2.3) | 12.4 |
| Female | 48.3 (∂2.3) | 46.2 (∂5.1) | 57.8 (∂1.8) | 61.3 (∂2.5) | 64.5 (∂2.0) | 11.6 |
| Age | | | | | | |
| 18-24 | 59.5 (∂4.4) | 59.2 (∂8.8) | 75.4 (∂3.2) | 75.5 (∂3.2) | 74.3 (∂3.4) | -1.5 |
| 25-44 | 44.7 (∂1.9) | 44.5 (∂4.8) | 58.2 (∂1.8) | 63.1 (∂2.4) | 66.4 (∂2.5) | 14.1 |
| 45-64 | 33.9 (∂3.2) | 32.1 (∂3.8) | 41.5 (∂2.6) | 45.8 (∂3.4) | 48.0 (∂3.0) | 15.7 |
| 65+ | 36.9 (∂4.4) | 45.0 (∂7.1) | 40.6 (∂4.3) | 48.4 (∂7.3) | 50.7 (∂6.4) | 24.9 |
| Race/Ethnicity | | | | | | |
| African-American | 64.7 (∂6.4) | 65.5 (∂7.3) | 69.6 (∂4.0) | 76.3 (∂4.7) | 71.7 (∂4.7) | 3.0 |
| Asian/PI | 59.6 (∂10.4) | 60.6 (∂12.2) | 67.2 (∂6.4) | 71.9 (∂6.5) | 75.2 (∂5.3) | 11.9 |
| Hispanic | 73.0 (∂3.3) | 70.7 (∂6.0) | 80.7 (∂2.8) | 81.5 (∂2.6) | 81.7 (∂3.0) | 1.2 |
| Non-Hispanic White | 32.0 (∂1.5) | 34.0 (∂3.2) | 42.7 (∂1.7) | 46.8 (∂2.3) | 49.3 (∂1.9) | 15.5 |
| Education | | | | | | |
| <12 | 46.3 (∂4.2) | 45.6 (∂15.4) | 59.5 (∂3.5) | 65.7 (∂4.3) | 63.9 (∂4.1) | 7.4 |
| 12 | 41.7 (∂2.5) | 42.5 (∂3.1) | 50.5 (∂2.0) | 52.8 (∂3.0) | 56.4 (∂2.6) | 11.7 |
| 13-15 | 42.6 (∂2.5) | 42.6 (∂3.6) | 54.5 (∂2.8) | 58.8 (∂2.3) | 61.5 (∂2.4) | 12.8 |
| 16+ | 45.1 (∂3.6) | 48.5 (∂4.6) | 58.8 (∂2.8) | 64.6 (∂3.6) | 68.3 (∂3.5) | 16.2 |
| Household Income | | | | | | |
| <= 10,000 | 52.7 (∂5.9) | | 55.2 (∂3.5) | 54.7 (∂5.0) | 64.9 (∂5.4) | 17.6 |
| 10,001-20,000 | 47.3 (∂4.6) | | 58.5 (∂3.3) | 67.1 (∂4.4) | 64.9 (∂3.8) | 10.9 |
| 20,001-30,000 | 43.2 (∂4.0) | | 55.6 (∂3.6) | 58.8 (∂4.5) | 60.9 (∂4.2) | 9.5 |
| 30,001-50,000 | 38.7 (∂3.5) | | 53.7 (∂3.0) | 55.9 (∂4.0) | 58.7 (∂3.8) | 9.3 |
| 50,001-75,000 | 38.1 (∂3.4) | | 53.9 (∂3.1) | 54.6 (∂3.0) | 62.1 (∂4.2) | 15.2 |
| 75,000+ | 43.6 (∂4.6) | | 54.4 (∂4.4) | 61.1 (∂3.8) | 59.4 (∂3.4) | 9.2 |
| Unknown | 44.4 (∂4.3) | | 54.8 (∂4.7) | 67.0 (∂5.4) | 64.3 (∂5.5) | 17.3 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1992, 1996, 1999, 2002

Table A.8.2 shows the percentages of demographic groups of smokers with a quit attempt lasting for a day or longer in the past year. Although male smokers appear to be more likely to quit than female smokers, the difference was only marginally significant in 2002. In all years, except 1992 (small sample) smokers under the age of 45 years were significantly more likely to try to quit than older smokers. Also, except for 1992, minorities had significantly higher attempt rates than Non-Hispanic Whites. Hispanics and Non-Hispanic White smokers showed significant increases in one-day attempts between 1996 and 2002. There were no remarkable differences by educational status or income in the percentage of smokers attempting to quit.

| Table A.8.2 Percent of Smokers in the Last Year Who Made a Quit Attempt of One or More Days | | | | | | |
|--|-------------|--------------|-------------|-------------|-------------|----------------------------|
| | 1990 % | 1992 % | 1996 % | 1999 % | 2002 % | Factor Change 1996-2002 |
| Total | 48.9 (±1.5) | 38.1 (±2.0) | 56.0 (±1.1) | 61.5 (±1.5) | 62.1 (±1.2) | 10.9 |
| Gender | | | | | | |
| Male | 49.7 (±2.5) | 38.9 (±2.8) | 57.0 (±1.7) | 62.9 (±2.2) | 63.5 (±1.6) | 11.4 |
| Female | 47.8 (±1.9) | 37.0 (±2.8) | 54.7 (±1.7) | 59.7 (±2.3) | 59.8 (±2.1) | 9.3 |
| Age | | | | | | |
| 18-24 | 62.2 (±3.0) | 45.8 (±9.3) | 75.2 (±3.1) | 78.9 (±3.3) | 79.5 (±3.2) | 5.7 |
| 25-44 | 49.6 (±2.2) | 37.3 (±2.3) | 57.2 (±1.9) | 63.1 (±2.3) | 63.6 (±2.1) | 11.2 |
| 45-64 | 42.0 (±2.8) | 36.4 (±3.8) | 45.7 (±1.7) | 50.8 (±3.0) | 51.8 (±3.0) | 13.3 |
| 65+ | 39.0 (±5.0) | 32.1 (±4.8) | 44.1 (±4.1) | 48.1 (±5.9) | 47.6 (±7.0) | 7.9 |
| Race/Ethnicity | | | | | | |
| African-American | 59.0 (±6.8) | 45.6 (±7.8) | 62.3 (±5.5) | 70.6 (±5.5) | 65.1 (±5.4) | 4.5 |
| Asian/PI | 51.1 (±8.6) | 46.0 (±11.8) | 59.3 (±5.1) | 65.5 (±5.3) | 67.0 (±5.5) | 13.0 |
| Hispanic | 57.7 (±4.7) | 39.2 (±7.6) | 66.4 (±2.7) | 67.3 (±3.5) | 73.0 (±3.2) | 9.9 |
| Non-Hispanic White | 45.1 (±1.4) | 36.1 (±3.1) | 51.0 (±1.4) | 58.0 (±1.8) | 55.9 (±1.0) | 9.6 |
| Education | | | | | | |
| <12 | 48.6 (±3.9) | 35.7 (±4.7) | 59.2 (±2.9) | 63.0 (±4.3) | 63.7 (±3.9) | 7.6 |
| 12 | 47.8 (±2.0) | 37.0 (±3.6) | 51.6 (±2.0) | 60.6 (±2.5) | 58.5 (±2.3) | 13.4 |
| 13-15 | 51.8 (±2.8) | 41.7 (±2.8) | 56.8 (±2.2) | 61.8 (±2.2) | 64.2 (±2.5) | 13.0 |
| 16+ | 47.3 (±3.1) | 40.3 (±4.4) | 58.4 (±3.0) | 60.7 (±2.9) | 63.3 (±3.4) | 8.4 |
| Household Income | | | | | | |
| <= 10,000 | 48.0 (±4.3) | | 54.3 (±3.6) | 60.4 (±4.4) | 63.0 (±4.4) | 16.0 |
| 10,001-20,000 | 50.2 (±4.0) | | 60.3 (±3.8) | 64.5 (±3.8) | 63.0 (±4.4) | 4.5 |
| 20,001-30,000 | 47.8 (±3.2) | | 55.5 (±3.7) | 62.2 (±3.9) | 62.2 (±3.5) | 12.1 |
| 30,001-50,000 | 49.9 (±3.5) | | 56.0 (±2.2) | 59.2 (±3.9) | 60.5 (±3.7) | 8.0 |
| 50,001-75,000 | 52.4 (±4.6) | | 54.9 (±3.8) | 60.8 (±3.9) | 63.9 (±3.7) | 16.4 |
| 75,000+ | 46.3 (±4.7) | | 56.0 (±2.2) | 62.9 (±3.2) | 60.7 (±3.0) | 8.4 |
| Unknown | 45.9 (±5.1) | | 53.6 (±3.8) | 60.8 (±5.7) | 62.9 (±6.3) | 17.4 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1992, 1996, 1999, 2002

Table A.8.3 shows the percentage of smokers who stayed off for at least a week on their longest quit attempt in the last year. There was no significant gender difference in any survey year, but males showed a significant increase in week+ quit attempts between 1996 and 2002 while females did not. Younger smokers were more likely to stay off for a week or longer than older smokers, but smokers between 25 and 64 years made significant gains between 1996 and 1999.

| Table A.8.3 | | | | | | |
|--|-------------------|-------------------|-------------------|-------------------|-------------------|--|
| Percent of Smokers in the Last Year Who Made a Quit Attempt of 1 Week or More | | | | | | |
| | 1990 % | 1992 % | 1996 % | 1999 % | 2002 % | Factor Change 1996-2002 |
| Total | 29.2 (∂1.4) | 25.1 (∂2.5) | 36.1 (∂1.3) | 41.4 (∂1.4) | 40.5 (∂1.5) | 4.4 |
| Gender | | | | | | |
| Male | 29.7 (∂1.9) | 25.3 (∂3.0) | 36.3 (∂1.7) | 41.8 (∂2.0) | 41.4 (∂1.9) | 14.0 |
| Female | 28.5 (∂1.9) | 24.8 (∂3.1) | 35.9 (∂1.7) | 41.0 (∂2.1) | 39.0 (∂2.4) | 8.6 |
| Age | | | | | | |
| 18-24 | 40.4 (∂3.0) | 32.6 (∂12.8) | 52.7 (∂3.7) | 56.0 (∂4.5) | 56.1 (∂3.7) | 6.5 |
| 25-44 | 28.4 (∂1.6) | 24.3 (∂2.4) | 36.3 (∂1.7) | 41.9 (∂2.0) | 41.2 (∂2.5) | 13.5 |
| 45-64 | 25.3 (∂2.9) | 22.1 (∂2.7) | 27.7 (∂2.3) | 34.4 (∂2.8) | 31.8 (∂3.2) | 14.8 |
| 65+ | 23.9 (∂3.7) | 23.0 (∂5.0) | 30.0 (∂4.0) | 28.7 (∂5.2) | 30.1 (∂6.3) | 0.3 |
| Race/Ethnicity | | | | | | |
| African American | 33.8 (∂6.2) | 26.6 (∂5.9) | 32.6 (∂3.8) | 46.7 (∂5.4) | 39.2 (∂5.0) | 20.2 |
| Asian/PI | 26.3 (∂7.1) | 32.7 (∂9.5) | 42.3 (∂5.4) | 45.2 (∂6.2) | 41.9 (∂6.4) | -0.9 |
| Hispanic | 39.0 (∂4.3) | 29.6 (∂7.2) | 48.0 (∂3.3) | 48.6 (∂3.8) | 50.9 (∂3.6) | 6.0 |
| Non-Hispanic White | 26.3 (∂1.3) | 22.8 (∂3.6) | 31.8 (∂1.3) | 38.1 (∂1.6) | 36.0 (∂1.6) | 13.2 |
| Education | | | | | | |
| <12 | 30.3 (∂3.5) | 21.8 (∂6.7) | 37.7 (∂3.5) | 42.9 (∂4.8) | 40.7 (∂3.9) | 8.0 |
| 12 | 27.7 (∂2.1) | 25.1 (∂2.8) | 33.9 (∂2.2) | 40.4 (∂2.6) | 36.2 (∂2.2) | 6.8 |
| 13-15 | 30.5 (∂2.2) | 26.9 (∂3.4) | 35.3 (∂2.1) | 41.6 (∂2.3) | 43.1 (∂2.7) | 22.1 |
| 16+ | 28.5 (∂2.8) | 29.1 (∂4.3) | 39.2 (∂2.7) | 41.4 (∂3.1) | 43.7 (∂4.1) | 11.5 |
| Household Income | | | | | | |
| <= 10,000 | 29.3 (∂4.6) | | 33.8 (∂3.3) | 41.4 (∂5.5) | 41.0 (∂4.6) | 21.3 |
| 10,001-20,000 | 29.1 (∂3.4) | | 38.9 (∂3.9) | 41.7 (∂4.5) | 41.5 (∂5.0) | 6.7 |
| 20,001-30,000 | 27.6 (∂3.0) | | 36.6 (∂4.4) | 39.3 (∂3.4) | 38.8 (∂3.5) | 6.0 |
| 30,001-50,000 | 30.0 (∂3.7) | | 36.8 (∂2.6) | 41.4 (∂4.0) | 39.3 (∂3.6) | 6.8 |
| 50,001-75,000 | 32.1 (∂3.1) | | 33.2 (∂3.0) | 40.9 (∂4.0) | 40.5 (∂3.1) | 22.0 |
| 75,000+ | 29.5 (∂4.9) | | 36.8 (∂3.7) | 44.0 (∂3.2) | 41.2 (∂2.8) | 12.0 |
| Unknown | 26.8 (∂4.9) | | 35.4 (∂3.7) | 40.7 (∂5.3) | 41.7 (∂6.9) | 17.8 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1992, 1996, 1999, 2002

Hispanic smokers were more likely than Non-Hispanic Whites to stay off for a week or longer in all years except 1992, but Non-Hispanic Whites showed a significant increase between 1996 and 2002. College graduates were significantly more likely to stay off a week or more than high school graduates in 1996 and 2002, but those with some college showed a significant gain over this period. There were no remarkable differences by income level; however, the lowest income group and the group earning between 50,001 and 75,000 showed significant increases between 1996 and 2002.

Table A.8.4 shows the percentage of current smokers who reported that they had stayed off cigarettes for a year or longer since they had begun to smoke regularly. None of the changes between 1996 and 2002 were statistically significant.

| Table A.8.4 Current Smokers Who Managed to Stay Off Cigarettes for a Year or Longer Since Starting to Smoke Regularly | | | | |
|--|-------------|-------------|-------------|-------------------------------|
| | 1996 % | 1999 % | 2002 % | Factor Change 1996-2002 |
| Total | 23.3 (±1.4) | 23.0 (±1.3) | 22.0 (±1.3) | -5.6 |
| Gender | | | | |
| Male | 23.4 (±1.7) | 23.7 (±1.9) | 21.1 (±1.9) | -9.8 |
| Female | 23.1 (±2.0) | 22.0 (±2.0) | 23.4 (±2.0) | 1.3 |
| Age | | | | |
| 18-24 | 9.2 (±2.4) | 8.8 (±2.2) | 9.8 (±2.3) | 6.5 |
| 25-44 | 24.3 (±1.8) | 25.2 (±1.9) | 24.1 (±1.8) | -0.1 |
| 45-64 | 29.0 (±2.6) | 27.8 (±2.7) | 26.2 (±2.2) | -9.3 |
| 65+ | 21.5 (±4.1) | 21.6 (±4.5) | 18.1 (±5.5) | -16.3 |
| Race/Ethnicity | | | | |
| African American | 17.3 (±4.6) | 22.9 (±6.6) | 19.6 (±5.3) | 13.3 |
| Asian/PI | 23.6 (±6.5) | 17.5 (±5.6) | 19.1 (±5.3) | -19.1 |
| Hispanic | 21.0 (±4.3) | 21.9 (±3.1) | 21.1 (±3.1) | 0.5 |
| Non-Hispanic White | 25.0 (±1.7) | 24.5 (±1.4) | 23.1 (±1.8) | -7.6 |
| Education | | | | |
| <12 | 19.6 (±1.8) | 19.5 (±2.0) | 18.9 (±2.0) | -3.6 |
| 12 | 22.0 (±5.4) | 26.4 (±9.7) | 24.2 (±7.5) | 10.0 |
| 13-15 | 27.3 (±2.4) | 26.2 (±2.4) | 23.8 (±2.4) | -12.8 |
| 16+ | 28.4 (±3.2) | 29.1 (±2.8) | 27.7 (±3.7) | -2.5 |
| Household Income | | | | |
| ≤ 10,000 | 14.6 (±2.9) | 19.3 (±5.3) | 12.9 (±3.8) | -11.6 |
| 10,001-20,000 | 21.8 (±3.0) | 18.9 (±3.2) | 23.2 (±5.0) | 6.4 |
| 20,001-30,000 | 22.6 (±4.4) | 22.3 (±4.0) | 18.6 (±3.5) | -17.7 |
| 30,001-50,000 | 24.3 (±2.5) | 22.3 (±2.8) | 24.5 (±3.8) | 0.8 |
| 50,001-75,000 | 26.7 (±3.5) | 21.9 (±2.8) | 23.5 (±2.9) | -12.0 |
| 75,000+ | 28.7 (±3.7) | 29.3 (±3.4) | 23.3 (±2.7) | -18.8 |
| Unknown | 24.1 (±5.2) | 27.5 (±6.4) | 23.9 (±5.0) | -0.8 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1996, 1999, 2002

2. Smokers Who May Never Quit

Table A.8.5 shows the percentage of current smokers who never expect to quit smoking. In 1996 and 1999 there was a higher percentage of male smokers who never expected to quit than females smokers, but males showed a decline from 1996 to 2002, so that the gender difference was less in 2002. In each year, there were significantly higher percentages in each older age group that never expected to quit. Non-Hispanic White smokers were more likely to say they never expect to quit than other racial/ethnic groups, but only significantly more likely than African American and Hispanic smokers. The increase between 1990 and 2002 for the Asian/PI group was not statistically significant. In all years those who did not graduate from high school were more likely to say they would not quit, but the educational differences were not significantly

| Table A.8.5 Smokers > 25 Years of Age Who Never Expect to Quit | | | | |
|---|-------------|-------------|-------------|-------------------------------|
| | 1996 % | 1999 % | 2002 % | Factor Change 1996-2002 |
| Total | 10.0 (±1.0) | 9.2 (±1.2) | 8.2 (±1.1) | -18.0 |
| Gender | | | | |
| Male | 11.1 (±1.3) | 10.1 (±1.7) | 8.5 (±1.7) | -23.4 |
| Female | 8.7 (±1.2) | 8.1 (±1.3) | 7.7 (±1.5) | -11.5 |
| Age | | | | |
| 26-44 | 5.9 (±1.0) | 5.4 (±1.0) | 4.8 (±0.9) | -18.6 |
| 45-64 | 13.1 (±1.8) | 12.8 (±2.3) | 10.3 (±2.3) | -21.4 |
| 65+ | 27.0 (±3.6) | 22.0 (±5.3) | 23.5 (±6.2) | -13.0 |
| Race/Ethnicity | | | | |
| African American | 4.6 (±1.8) | 2.9 (±2.1) | 3.6 (±2.2) | 21.7 |
| Asian/PI | 7.3 (±3.2) | 8.9 (±3.3) | 10.6 (±7.0) | 45.2 |
| Hispanic | 7.1 (±1.7) | 6.9 (±2.2) | 5.2 (±1.5) | -26.8 |
| Non-Hispanic White | 11.8 (±1.2) | 11.0 (±1.4) | 9.4 (±1.0) | -20.3 |
| Education | | | | |
| <12 | 11.1 (±2.8) | 9.4 (±3.1) | 9.5 (±3.1) | -14.4 |
| 12 | 10.8 (±1.7) | 9.2 (±1.9) | 9.0 (±1.8) | -16.7 |
| 13-15 | 8.1 (±1.1) | 9.3 (±1.4) | 7.9 (±2.5) | -2.5 |
| 16+ | 10.3 (±2.1) | 9.0 (±2.1) | 5.7 (±1.7) | -44.7 |
| Household Income | | | | |
| <= 10,000 | 13.8 (±3.9) | 10.2 (±3.7) | 10.6 (±3.9) | -22.1 |
| 10,001-20,000 | 8.8 (±1.6) | 9.9 (±3.3) | 7.2 (±3.2) | -18.2 |
| 20,001-30,000 | 10.4 (±2.4) | 9.2 (±2.5) | 7.7 (±3.4) | -26.0 |
| 30,001-50,000 | 9.7 (±1.8) | 10.2 (±2.4) | 6.6 (±2.0) | -32.0 |
| 50,001-75,000 | 6.4 (±1.7) | 7.7 (±2.2) | 9.2 (±4.0) | 43.8 |
| 75,000+ | 9.7 (±2.5) | 7.4 (±1.8) | 6.7 (±2.1) | -30.9 |
| Unknown | 13.3 (±4.1) | 11.0 (±5.1) | 12.9 (±5.3) | -3.0 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1996, 1999, 2002

different. Smokers who graduated from college showed a significant decline between 1996 and 2002 in the percentage who never expect to quit. The differences by income groups were not statistically significant.

3. The Role of Workplace and Home Smoking Bans

Table A.8.6 shows the percentages of smokers with smoking bans both at their workplace and at home. Except for 1996, there were no significant gender differences. However, females showed a huge increase between 1996 and 2002, perhaps indicating that they were less ready to adopt home smoking bans early on, but did later. Younger smokers (<45 years) were significantly more likely to experience dual bans than older smokers in all years beginning with 1996. Many smokers over the age of 65 are no longer in the workforce, so they may only be subject to smoke-free homes.

| Table A.8.6 Smokers Both Working and Living with Complete Bans on Smoking | | | | | |
|--|-----------|------------|------------|------------|-------------------------------|
| | 1992 % | 1996 % | 1999 % | 2002 % | Factor Change 1996-2002 |
| Total | 3.0 (0.7) | 18.0 (0.1) | 23.7 (0.1) | 24.1 (0.1) | 33.9 |
| Gender | | | | | |
| Male | 3.6 (0.1) | 20.3 (0.1) | 24.0 (0.1) | 23.6 (0.1) | 16.3 |
| Female | 2.4 (0.0) | 15.0 (0.1) | 23.3 (0.1) | 24.8 (0.2) | 65.3 |
| Age | | | | | |
| 18-24 | 3.8 (0.2) | 23.8 (0.3) | 27.5 (0.3) | 27.9 (0.3) | 17.4 |
| 25-44 | 3.7 (0.1) | 20.9 (0.1) | 28.3 (0.1) | 29.0 (0.2) | 38.8 |
| 45-64 | 2.1 (0.0) | 13.4 (0.2) | 18.3 (0.2) | 17.8 (0.2) | 32.8 |
| 65+ | 0.0 (0.0) | 1.8 (0.1) | 3.7 (0.2) | 4.6 (0.2) | 156.0 |
| Race/Ethnicity | | | | | |
| African American | 2.4 (0.2) | 12.4 (0.4) | 20.2 (0.5) | 16.8 (0.3) | 35.5 |
| Asian/PI | 6.4 (0.4) | 23.4 (0.5) | 33.4 (0.7) | 35.1 (0.6) | 50.0 |
| Hispanic | 3.1 (0.1) | 26.2 (0.3) | 30.4 (0.2) | 25.8 (0.3) | -1.5 |
| Non-Hispanic White | 2.9 (0.0) | 15.6 (0.0) | 20.9 (0.1) | 23.1 (0.1) | 48.1 |
| Education | | | | | |
| <12 | 1.6 (0.1) | 15.3 (0.3) | 20.6 (0.4) | 14.2 (0.3) | -7.2 |
| 12 | 2.0 (0.1) | 15.7 (0.2) | 20.7 (0.2) | 19.6 (0.1) | 24.8 |
| 13-15 | 4.1 (0.1) | 19.8 (0.1) | 24.6 (0.1) | 28.1 (0.2) | 41.9 |
| 16+ | 7.6 (0.2) | 24.0 (0.2) | 33.2 (0.3) | 39.1 (0.4) | 62.9 |
| Household Income | | | | | |
| <= 10,000 | | 10.1 (0.2) | 13.1 (0.3) | 12.6 (0.3) | 24.8 |
| 10,001-20,000 | | 15.2 (0.2) | 20.0 (0.3) | 17.9 (0.3) | 17.8 |
| 20,001-30,000 | | 15.5 (0.3) | 23.1 (0.3) | 23.1 (0.4) | 49.0 |
| 30,001-50,000 | | 18.6 (0.2) | 22.7 (0.2) | 23.7 (0.3) | 27.4 |
| 50,001-75,000 | | 22.3 (0.3) | 24.1 (0.2) | 26.6 (0.3) | 19.3 |
| 75,001+ | | 28.1 (0.4) | 36.5 (0.3) | 34.2 (0.3) | 21.7 |
| Unknown | | 17.4 (0.4) | 21.8 (0.4) | 19.0 (0.4) | 9.2 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1992, 1996, 1999, 2002

In 2002, Asian/PI smokers were significantly more likely to have smoking bans both at work and at home, and this group showed a significant increase, by a factor of 50%, between 1996 and 2002. African American smokers were least likely to have dual bans. Hispanics are less protected at work and more likely to be protected at home (see Chapter 6), and did not show a significant change between 1996 and 2002. However, Non-Hispanic White smokers did show a significant increase over that period.

In each year, college educated smokers were more likely to have both types of smoking bans than the other educational groups, and this group showed a large and significant increase between 1996 and 2002, by a factor of 62.9%. The group with some college also showed a significant increase over this period. The big increase in 1999 for those who did not graduate high school was not significant, and the 2002 rate is similar to that in 1996. In 2002, smokers in households with high incomes (>\$50,000) were significantly more likely to have both types of smoking bans than smokers from low-income households (\leq \$20,000).

4. Smoking Cessation Assistance

Table A.8.7 presents the percentages of smokers in the last year in different demographic subgroups that used nicotine replacement therapy (NRT) for their most recent quit attempt. In general, more female smokers than male smokers used NRT, but only in 1996 was the difference significant. The youngest group of smokers was less likely to use NRT than older groups in every year, but this group showed a significant increase in NRT use between 1996 and 2002.

In 1996 and 1999, Non-Hispanic White quitters were significantly more likely than Hispanics and African Americans to have used NRT. While all ethnic groups except Hispanics made gains during this period, they were not statistically significant. Hispanics were the least likely to use NRT for their most recent quit attempt in every year, and the difference was significant between Hispanics and every other group in 2002. However, many Hispanic smokers are light smokers, so they may feel less need to use NRT.

Smokers who graduated high school showed a significant increase in NRT use between 1996 and 2002. While college graduates showed a decline over this period, it was not statistically significant. In general, smokers in households with higher incomes were more likely to use NRT than those in households with lower incomes, and in 2002 the differences for those with >\$50,000 annual incomes compared to those with \$30,000 or less annual incomes were significant. While those with higher incomes increased their use of NRT more than those with lower incomes, the increases between 1996 and 2002 were not statistically significant.

| Table A.8.7 Use of Nicotine Replacement for Most Recent Quit Attempt Among Smokers in the Last Year | | | | | |
|--|------------|-------------|-------------|-------------|----------------------------|
| | 1992 % | 1996 % | 1999 % | 2002 % | Factor Change 1996-2002 |
| Total | 9.3(±1.8) | 12.7 (±1.1) | 14.3 (±1.3) | 15.7 (±1.3) | 23.6 |
| Gender | | | | | |
| Male | 8.0(±1.8) | 11.3 (±1.4) | 13.4 (±1.8) | 14.6 (±1.8) | 29.2 |
| Female | 11.0(±3.1) | 14.6 (±1.8) | 15.7 (±2.1) | 17.6 (±2.4) | 20.5 |
| Age | | | | | |
| 18-24 | 0.6(±0.8) | 2.9 (±1.0) | 5.9 (±1.7) | 6.8 (±1.6) | 134.5 |
| 25-44 | 9.6(±2.3) | 12.8 (±1.3) | 14.7 (±1.9) | 16.5 (±2.1) | 28.9 |
| 45-64 | 14.1(±3.9) | 18.8 (±2.6) | 20.7 (±3.8) | 22.1 (±3.8) | 17.6 |
| 65+ | 19.6(±9.2) | 24.4 (±5.4) | 19.2 (±5.8) | 19.6 (±6.4) | -19.7 |
| Race/Ethnicity | | | | | |
| African American | 6.3(±4.4) | 7.7 (±4.9) | 9.8 (±3.8) | 14.1 (±5.2) | 83.3 |
| Asian/PI | 3.0(±3.7) | 10.4 (±9.8) | 9.8 (±6.9) | 17.9 (±7.3) | 72.1 |
| Hispanic | 2.9(±2.3) | 5.7 (±2.1) | 6.6 (±2.5) | 5.4 (±1.5) | -5.3 |
| Non-Hispanic White | 11.9(±2.4) | 16.5 (±2.5) | 19.5 (±1.7) | 21.2 (±1.9) | 28.5 |
| Education | | | | | |
| <12 | 6.5(±3.2) | 8.8 (±2.8) | 10.1 (±2.7) | 10.7 (±3.3) | 21.6 |
| 12 | 9.6(±3.1) | 12.5 (±1.8) | 15.1 (±2.2) | 17.7 (±2.6) | 41.6 |
| 13-15 | 9.5(±2.5) | 14.4 (±1.6) | 16.2 (±2.2) | 18.3 (±2.5) | 27.1 |
| 16+ | 13.3(±4.6) | 19.6 (±7.0) | 16.2 (±2.4) | 14.5 (±3.0) | -26.0 |
| Household Income | | | | | |
| <= 10,000 | | 8.9 (±2.4) | 12.0 (±5.2) | 9.3 (±4.2) | 4.5 |
| 10,001-20,000 | | 11.4 (±2.9) | 11.7 (±3.7) | 11.5 (±3.8) | 0.9 |
| 20,001-30,000 | | 9.0 (±2.2) | 14.4 (±3.8) | 12.8 (±3.7) | 42.2 |
| 30,001-50,000 | | 14.3 (±2.9) | 16.6 (±3.2) | 17.4 (±3.8) | 21.7 |
| 50,001-75,000 | | 14.9 (±3.1) | 16.8 (±2.7) | 21.3 (±4.8) | 43.0 |
| 75,001+ | | 18.0 (±3.8) | 15.4 (±3.0) | 17.5 (±2.8) | -2.8 |
| Unknown | | 12.1 (±3.3) | 10.4 (±4.8) | 15.2 (±4.6) | 25.6 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1992, 1996, 1999, 2002

5. Physician Advice and Referral for Smoking Cessation

Table A.8.8 gives the percentages of smokers in the last year who were advised by their physician to quit during a visit to their physician in the last year or in the year before they quit. In each year, female smokers were more likely to be advised to quit than male smokers, but the difference was not significant in 1990, 1992, or 1999. The youngest group of smokers was least likely to have been advised in each year, and this difference was significant compared to the next oldest group in 1996 and 2002. Also in 2002, the 24-44 year age group was significantly less likely to be advised than the 45-64 year age group, and the latter age group reported significantly more advice in 2002 than in 1999.

Hispanic smokers were the least likely to be advised to quit by their physicians, again perhaps because they are less likely to be moderate-to-heavy smokers, and the difference between that group and Non-Hispanic White smokers was significant in 1990, 1996, 1999, and 2002. The gain between 1996 and 2002, by a factor of 23.8%, for Hispanics was not significant. While it appeared that African American smokers were being advised more in recent years, the difference was only significant when compared to Hispanics in 2002. There was little difference in advice by education group or income.

| Table A.8.8 Physician Advice to Quit Among Smokers in the Last Year with One or more Visits to a Physician in the Last Year | | | | | | |
|--|-------------|--------------|--------------|-------------|-------------|-------------------------------|
| | 1990 % | 1992 % | 1996 % | 1999 % | 2002 % | Factor Change 1996-2002 |
| Total | 39.9 (±1.7) | 47.3 (±3.2) | 50.5 (±1.8) | 53.2 (±2.1) | 57.2 (±2.0) | 13.3 |
| Gender | | | | | | |
| Male | 38.7 (±2.4) | 44.4 (±4.3) | 47.3 (±2.7) | 50.9 (±3.0) | 54.7 (±2.0) | 15.6 |
| Female | 41.0 (±2.1) | 50.1 (±3.2) | 53.7 (±2.0) | 55.7 (±2.5) | 60.3 (±3.2) | 12.3 |
| Age | | | | | | |
| 18-24 | 33.2 (±4.9) | 33.0 (±8.1) | 38.1 (±4.0) | 45.9 (±4.1) | 44.0 (±3.7) | 15.5 |
| 25-44 | 36.4 (±1.9) | 43.5 (±4.8) | 47.8 (±2.2) | 49.3 (±3.3) | 54.5 (±3.2) | 14.0 |
| 45-64 | 46.6 (±3.8) | 56.0 (±4.7) | 59.3 (±3.4) | 61.3 (±3.2) | 68.0 (±3.5) | 27.3 |
| 65+ | 51.8 (±5.4) | 68.0 (±8.0) | 59.8 (±4.5) | 63.2 (±6.0) | 62.9 (±6.4) | 14.7 |
| Race/Ethnicity | | | | | | |
| African American | 45.9 (±8.0) | 44.8 (±11.9) | 55.5 (±10.8) | 53.3 (±7.2) | 65.1 (±6.0) | 17.3 |
| Asian/PI | 44.9 (±9.4) | 37.2 (±13.9) | 58.3 (±14.2) | 49.9 (±8.5) | 57.2 (±9.2) | -1.9 |
| Hispanic | 29.9 (±7.0) | 40.3 (±11.5) | 38.6 (±4.4) | 45.1 (±4.6) | 47.8 (±5.1) | 23.8 |
| Non-Hispanic White | 40.8 (±1.7) | 50.0 (±3.4) | 49.9 (±4.1) | 56.1 (±1.9) | 60.1 (±2.1) | 20.4 |
| Education | | | | | | |
| <12 | 40.7 (±4.5) | 49.2 (±7.8) | 47.7 (±4.0) | 55.9 (±5.9) | 55.3 (±5.5) | 15.9 |
| 12 | 40.2 (±2.4) | 47.2 (±4.6) | 50.5 (±3.3) | 54.3 (±3.3) | 60.2 (±3.7) | 19.2 |
| 13-15 | 38.7 (±2.6) | 46.3 (±3.8) | 51.7 (±1.9) | 54.5 (±2.6) | 57.0 (±3.1) | 10.3 |
| 16+ | 39.5 (±4.7) | 46.0 (±5.7) | 50.5 (±7.1) | 45.6 (±3.5) | 54.6 (±3.4) | 8.1 |
| Household Income | | | | | | |
| <= 10,000 | 44.6 (±6.8) | | 50.0 (±5.3) | 53.9 (±7.4) | 55.2 (±6.6) | 10.4 |
| 10,001-20,000 | 38.0 (±4.9) | | 51.3 (±4.5) | 56.8 (±4.6) | 55.3 (±5.7) | 7.8 |
| 20,001-30,000 | 38.3 (±4.3) | | 48.1 (±3.8) | 52.9 (±5.3) | 58.8 (±4.8) | 22.2 |
| 30,001-50,000 | 39.6 (±3.6) | | 50.6 (±3.6) | 55.5 (±4.2) | 58.8 (±4.5) | 16.2 |
| 50,001-75,000 | 41.3 (±3.6) | | 53.0 (±4.2) | 51.2 (±4.0) | 59.9 (±4.6) | 13.0 |
| 75,001+ | 34.3 (±4.5) | | 49.9 (±4.6) | 50.4 (±4.9) | 56.2 (±3.7) | 12.6 |
| Unknown | 42.4 (±5.7) | | 50.1 (±5.4) | 51.2 (±7.2) | 53.3 (±7.8) | 6.4 |

TABLE ENTRIES ARE Weighted PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1992, 1996, 1999, 2002

GLOSSARY**Adults**

Current smoker – has smoked at least 100 cigarettes in his or her lifetime and smokes now (old question) or now either everyday or some days (new question) at the time of the survey.

Daily smoker – a *current smoker* who has smoked on every day of the past month (old question sequence) or who now smokes everyday (new question).

Former smoker – has smoked at least 100 cigarettes in lifetime, but does not smoke now (old question) or now smokes not at all (new question).

Light smoker – a *current smoker* who smokes fewer than 15 cigarettes a day.

Moderate-to-heavy smoker – a *current smoker* who smokes 15 or more cigarettes a day.

Non-daily smoker – a *current smoker* who smoked on at least 1 day but less than 30 days in the past month (old question sequence) or who says he or she now smokes some days (new question).

Smoker in the last year – Either a *current smoker* or a *former smoker* who smoked regularly a year before the survey.

REFERENCES

- Borland R. Slip-ups and relapse in attempts to quit smoking. *Addict Behav.* **1990**;15:235-245.
- Emery S, Gilpin EA, Ake C, Farkas AJ, Pierce JP. Who is a hard core smoker, and how many are there? Implications for further reducing smoking prevalence. *Am J Public Health.* **2000**;90:387-394.
- Etter JF, Laszlo E, Zellweger JP, Perrot C, Perneger TV. Nicotine replacement to reduce cigarette consumption in smokers who are not prepared to quit smoking: a randomized trial. *J Clin Psychopharmacol.* **2002**;22:487-495.
- Fagerstrom KO, Schneider NG. Measuring nicotine dependence: a review of the Fagerstrom Tolerance Questionnaire. *J Behav Med.* **1989**;12:159-182.
- Farkas AJ. When does cigarette fading increase the likelihood of future cessation? *Ann Behav Med.* **1999**;21:71-76.
- Farkas AJ, Gilpin EA, Distefan JM, Pierce JP. The effects of household and workplace smoking restrictions on quitting behaviors. *Tob Control.* **1999**;8: 261-265.
- Farkas AJ, Pierce JP, Zhu SH, Rosbrook B, Gilpin EA, Berry C, Kaplan RM. Addiction versus stages of change models in predicting smoking cessation. *Addiction.* **1996**;91:1271-1280.
- Fiore MC, Novotny TE, Pierce JP, Giovino GA, Hatziaandreu EJ, Newcomb PA, Surawicz TS, Davis RM. Methods used to quit smoking in the United States. Do cessation programs help? *JAMA.* **1990**;263:2760-2765.
- Frank E, Winkleby MA, Altman DG, Rockhill B, Fortmann SP. Predictors of physicians' smoking cessation advice. *JAMA.* **1991**;266: 3139-3144.
- Garvey AJ, Bliss RE, Hitchcock JL, Heinold JW, Rosner B. Predictors of smoking relapse among self-quitters: a report from the normative aging study. *Addict Behav.* **1992**;17:367-377.
- Gilpin EA, Emery SL, Farkas AJ, Distefan JM, White MM, Pierce JP. *The California Tobacco Control Program: A Decade of Progress, Results from the California Tobacco Surveys, 1990-1999.* La Jolla, CA: University of California, San Diego; **2001.**
- Gilpin EA, Pierce JP, Farkas AJ. Duration of smoking abstinence and success in quitting. *J Natl Cancer Inst.* **1997**;89:572-576.

- Gilpin EA, Pierce JP, Johnson M, Bal D. Physician advice to quit smoking: results from the 1990 California Tobacco Survey. *J Gen Intern Med.* **1993**;8:549-553.
- Gilpin EA, White MM, Farkas AJ, Pierce JP. Home smoking restrictions: which smokers have them and how they are associated with smoking behavior. *Nic Tob Res.* **1999**;1:153-162.
- Hymowitz N, Cummings KH, Hyland A, Lynn W, Pachacek TF, Hartwell TD. Predictors of smoking cessation in a cohort of adult smokers followed for five years. *Tob Control.* **1997**;6:S57-S62.
- Pierce JP. The quitting process. In: *Proceedings of the Conference on Health Insurance and Smoking*. The Smoking Behavior and Policy Conference Series at Harvard University, Cambridge, Massachusetts, pp. 8-23; **1990**.
- Pierce JP, Farkas AJ, Gilpin EA. Beyond stages of change: The quitting continuum measures progress toward successful smoking cessation. *Addiction.* **1998**;93:277-286.
- Pierce JP, Gilpin EA. Impact of over-the-counter sales on effectiveness of pharmaceutical aids for smoking cessation. *JAMA.* **2002**;288:1260-1264.
- Pierce JP, Gilpin E, Farkas AJ. Nicotine patch use in the general population: results from the 1993 California Tobacco Survey. *J Natl Cancer Inst.* **1995**;87: 87-93.
- Richmond R, Zwar N. Review of bupropion for smoking cessation. *Drug Alcohol Rev.* **2003**;22:203-220.
- Schwartz JL. *Review and evaluation of smoking cessation methods: the United States and Canada, 1978-1985*. U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health; **1987**. NIH Pub. No. (NIH)87-2940.
- Silagy C, Mant D, Fowler G, Lancaster T. *Nicotine replacement therapy for smoking cessation*. Cochrane Database System Reviews [database on CD-ROM]. Oxford, England: Cochrane Library, Update Software; **2000**. CD000146.
- Stratton K, Shetty P, Wallace R, Bondurant S (Eds.). *Clearing the Smoke: Assessing the Science Base for Tobacco Harm Reduction*. Washington, DC: National Academy Press; **2001**.
- Thorndike AN, Biener L, Rigotti NA. Effect on smoking cessation of switching nicotine replacement therapy to over-the-counter status. *Am J Public Health.* **2002**; 92(3):437-442.
- US Department of Health and Human Services (USDHHS). *Women and Smoking. A Report of the Surgeon General*. Rockville, MD: US Department of Health and Human Services; Public Health Service, Office of the Surgeon General, **2001**.

US Public Health Service (USPHS). *A clinical practice guideline for treating tobacco use and dependence: a US Public Health Service report. JAMA. 2000;283:3244-3254.*

Zhu SH, Melca T, Sun J, Rosbrook B, Pierce JP. Smoking cessation with and without assistance: a population-based analysis. *Am J Prev Med. 2000;18: 305-311.*

TOBACCO CONTROL SUCCESSES IN CALIFORNIA:
A FOCUS ON YOUNG PEOPLE

Chapter 9

Price, Taxes, and Purchasing Behavior

| | |
|--|-------------|
| KEY FINDINGS | 9-2 |
| Introduction..... | 9-3 |
| 1. Trends in Cigarette Price | 9-4 |
| Average Price Per Pack of Cigarettes | 9-4 |
| Price Elasticity | 9-4 |
| Reported Price Smokers Paid for Cigarettes | 9-6 |
| Worry About Cigarette Cost..... | 9-9 |
| 2. Support for a Further Cigarette Tax Increase..... | 9-10 |
| 3. Purchasing Behaviors..... | 9-12 |
| Purchasing by the Pack or Carton | 9-12 |
| 4. Adolescents | 9-23 |
| 5. Summary | 9-24 |
| APPENDIX | 9-26 |
| 1. Amount Smokers Spent on Cigarettes in Demographic Subgroups | 9-26 |
| 2. Support for New Excise Tax Increase in Demographic Subgroups..... | 9-29 |
| GLOSSARY | 9-30 |
| REFERENCES | 9-31 |

Chapter

9

KEY FINDINGS

Prices, Taxes, and Purchasing Behavior

- 1) Following a major price increase in 1999, the average price per pack of cigarettes increased by a factor of about 8 percent between 1999 and 2002.** In 2002, the FTC published average price was \$4.08/pack and smokers reported paying an average of \$3.84/pack.
- 2) Changes in per capita cigarette consumption since 1999 were due to more than changes in cigarette prices.** While price elasticity predicted the decline in cigarette consumption from 1998 to 1999, cigarette consumption continued to decline since 1999, during a period of relative price stability.
- 3) In 2002, support for a further excise tax increase of at least \$0.50/pack of cigarettes showed modest increases among both smokers and nonsmokers.** Overall, 60.8% of the population supported at least a \$0.50/pack tax increase, compared to 58.2% in 1999 and 57.1% in 1996.
- 4) Smokers have not switched to buying by the carton to minimize the cost of smoking.** Despite an increase in the pack-carton price differential in 2002 (38% more expensive by pack) compared to 1999 (29% more expensive by pack), the percentage of smokers buying cigarettes by the carton decreased slightly from 30.9% in 1996 to 27.1% in 1999 and to 25.7% in 2002.
- 5) In 2002, the main reason smokers gave for buying cigarettes by the pack is that it helps them control how much they smoke (39.6%).** The next most frequently cited reason was that the upfront cost of a carton was unaffordable (14.7%).
- 6) Smokers reported that the price of cigarettes had the most impact on where they bought their cigarettes (59.4%),** and the least impact on the cigarette brand smoked (28.9%). The price of cigarettes also influenced their desire to quit (48.2%) and how much they smoked (36.0%).
- 7) Despite the high percentage saying that price influenced where they bought cigarettes, few California smokers sought out lower or non-taxed sources of cigarettes (6.3% in 2002 vs. 5.3% in 1999),** such as buying out of state, at Indian reservations, at military commissaries, or over the Internet (only 1.1% of usual purchases in 2002).
- 8) In 2002, the majority of smokers continued to buy cigarettes by the pack at the most expensive outlets, convenience stores/gas stations and liquor/drug stores (63.9% in 2002 vs. 61.4% in 1999).**
- 9) Tobacco industry emphasis on promotional offers appears to be a successful marketing strategy.** Promotional offers that subsidize the price consumers pay for cigarettes (e.g., two for the price of one) were seen by 23.3% of California smokers at least half the time they bought cigarettes in 2002. Altogether, 32.7% of smokers took advantage of an offer every time they saw one.

Price, Taxes, and Purchasing Behavior

Introduction

In 1999, the price of cigarettes in California jumped by an unprecedented \$1.20/pack, due to the \$0.50/pack excise tax increase mandated by Proposition 10, and the tobacco industry's \$0.70/pack price increase. The tobacco industry's increase is attributed to its need to fund the Master Settlement Agreement, negotiated between the Attorneys General of 46 states and the leading tobacco companies to recover health care costs (Meier, 1998). In this chapter, we examine a number of issues related to cigarette price, including how it influences purchasing behavior.

Since 1999, there has been no further excise tax increase and tobacco-industry generated price increases have been modest. In this climate of relative price stability, it is important to examine how smokers have adapted to the earlier price increases in the longer term and to determine whether more smokers are now using strategies to minimize the cost of cigarettes. In addition, it is important to re-examine whether the 1999 price increase changed Californians' support for future additional increases in the tax levied on cigarettes.

Because of the size of the 1999 price increase, many believed that smokers would engage in tax-avoidance behavior to minimize their costs. Specifically, it was hypothesized that many more smokers would buy cigarettes from neighboring lower tax states, over the Internet, or from tax-free outlets such as Indian reservations or military commissaries. However, data from the 1999 California Tobacco Survey, conducted in the fall of 1999, did not indicate that Californians were engaging in such behavior shortly after the price increase (Emery et al., 2002). The 2002 CTS data can elucidate whether this has changed over time.

Section 1 examines trends in cigarette prices, price elasticity, how much smokers responding to the California Tobacco Surveys (CTS) reported that they paid for cigarettes, and whether they worry about how much they pay. Section 2 presents data on support for further cigarette excise-tax increases among smokers and non-smokers in California. Section 3 examines California smokers' purchasing behavior (pack vs. carton, where they buy their cigarettes), including how they perceived that price influenced their behavior. This section also examines Californians' awareness of cigarette promotional discount offers, and how often they take advantage of them. Section 4 describes price-related issues among adolescents. A summary of the chapter is provided in Section 5.

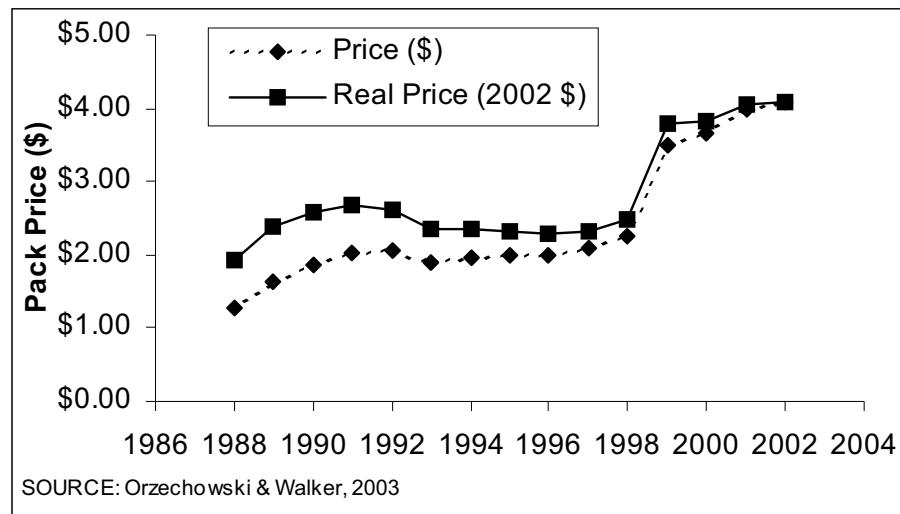
1. Trends in Cigarette Price

Average Price Per Pack of Cigarettes

As of November 1 each year, the tobacco industry reports the average retail price of cigarettes for each state to the Federal Trade Commission (Orzechowski & Walker, 2003).

Figure 9.1 shows the average price of a pack of cigarettes (adjusted to 2002 \$) in California between 1988 and 2002. The real price of cigarettes rose between 1988 and 1991 (by a factor of 38.7%), mostly because of \$0.25/pack excise tax increase mandated by Proposition 99. Cigarette prices decreased slightly in 1993, when the tobacco industry lowered the price on premium brands (Shapiro, 1993). Price then remained fairly stable until the \$1.20/pack increase between 1998 and 1999, which represents a 53% factor increase. After this increase, cigarette prices dropped slightly in 2000, but by 2002, the average price (\$4.08/pack) was higher by a factor of 7.6% than in 1999. Compared to 1997 when cigarettes cost \$2.33 /pack (2002 \$), cigarette prices were higher by a factor of 75% in 2002.

Figure 9.1: Average Price/Pack of Cigarettes in California



Price Elasticity

Higher cigarette prices lead to both reduced smoking prevalence and consumption (USDHHS, 1989; Wasserman et al., 1991; NCI, 1993). This association prompts tobacco control advocates to support increases in the excise tax levied on tobacco products as one of the major tools for tobacco control (CDC, 1999, Laugesen et al., 2000). However, for optimal effect, some have suggested that the initial price increase needs to be significant (at least a factor of 20%) and followed by frequent additional 3-5% increases to ensure the real price of cigarettes continues to increase over time (Laugesen et al., 2000). This schema would need to be adjusted, depending on the initial tax rate and price of cigarettes. If the tax rate is low, more than a 20% tax increase may be required for the resulting price increase to catch the attention of smokers.

The extent to which the price of a product influences its demand is called the price elasticity of demand. Price elasticity is defined and calculated as the percent change in demand that is due to a percentage change in price.

$$\text{Elasticity} = \frac{\% \text{ change in demand}}{\% \text{ change in price}}$$

Price elasticity consists of the following two components:

- (1) participation elasticity the extent to which price influences whether people smoke or not.
- (2) conditional demand the amount of cigarettes consumed by those who smoke.

Estimates of the overall price elasticity for cigarette demand in California lie between -0.45 and -0.60 (Hu et al., 1995). This means that every time the price of cigarettes increases by 10%, demand for cigarettes should fall by between 4-6%. Most studies attribute about half of the change in demand for cigarettes to a fall in the level of smoking participation (people quitting or not taking up smoking) and half to reduced consumption among current smokers (Becker et al., 1990; Lewit et al., 1997).

Elasticity is an observed historical relationship between price and consumption that can be used to predict future changes. Since it describes the size and direction of the relationship between price and demand for cigarettes, the historical elasticity can be used to calculate the expected change in cigarette consumption that would result from changes in the real price of cigarettes, all else remaining constant. That is, it is assumed that any other influences on consumption are not changing.

The formula for this calculation is as follows:

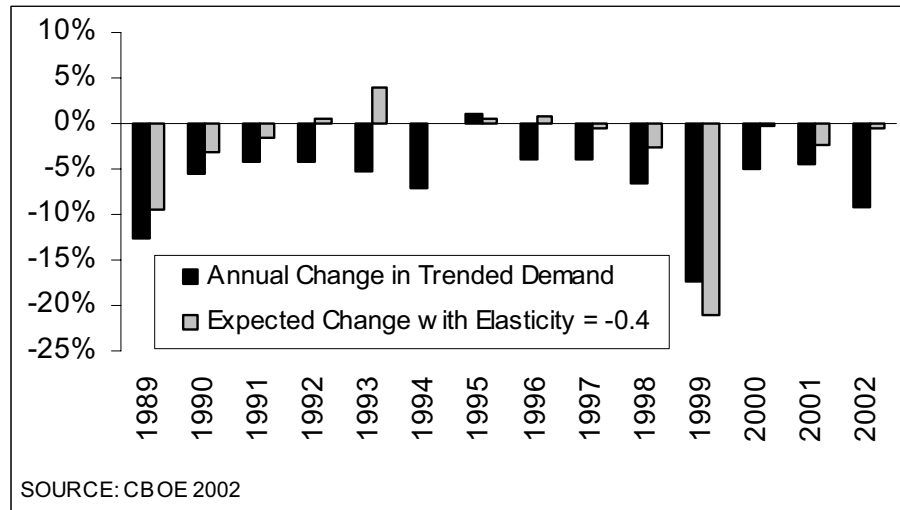
$$\text{Expected \% change in demand} = (\text{elasticity}) \times (\% \text{ change in price})$$

Figure 9.2 shows the expected annual percentage change in Californian's cigarette consumption (light bars) due to actual changes in average real prices per pack of cigarettes per year. The numbers assume a constant overall price elasticity of demand of -0.4, the consensus estimate of an expert panel convened by the National Cancer Institute (NCI, 1993). The dark bars show the actual annual percentage change in cigarette consumption in California as determined by estimates obtained from the Californian Board of Equalization for taxation purposes (CBOE, 2002).

Changes in per capita cigarette consumption are due to more than changes in cigarette price.

In the years of the major excise tax increases in California, the direction and magnitude of the expected and actual changes in consumption were in close agreement. However, in many years, between the two tax increases and since the latest one, the expected changes in consumption based on change in price

Figure 9.2: Expected and Annual Percentage Changes in Cigarette Consumption



have differed considerably from the actual changes. Consumption continued to decline relative to the previous year even though prices were stable or only changed slightly. For instance, in 2000 and 2002 the expected decline in consumption was practically zero, but actual consumption declined in 2000 by a factor of 4.9% and in 2002 by a factor of 9.2% relative to the previous year. These declines in per capita consumption suggest that in addition to changes in cigarette prices, other factors are driving smoking behavior in California.

Reported Price Smokers Paid for Cigarettes

In the 1996, 1999, and 2002 CTS, all smokers identified were asked the following two questions:

Do you usually buy cigarettes by the carton, by the pack or do you roll your own?

and

How much do you usually pay for a pack [carton] of cigarettes?

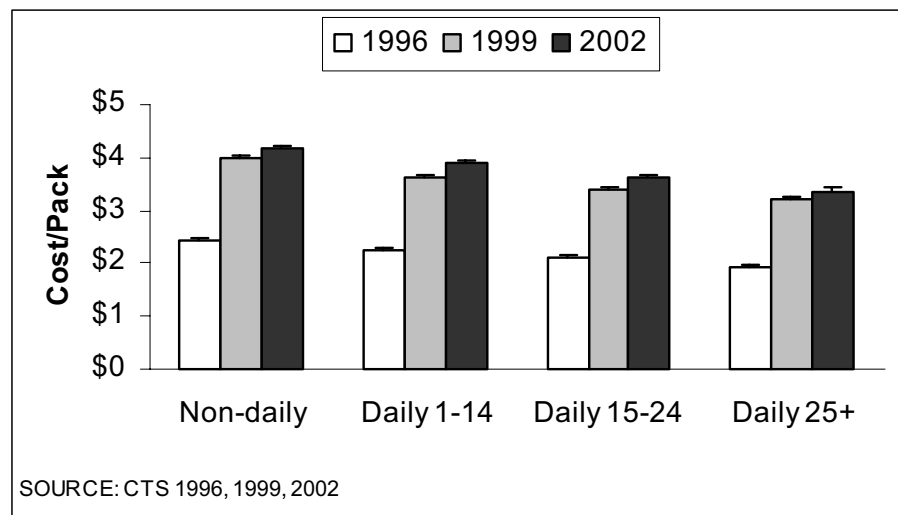
Together these two questions provide information on the average price California smokers paid for a pack of cigarettes. Smokers who usually bought by the carton were asked for the price they usually paid per carton, and this was converted to an average price per pack by dividing the carton price by 10 — the number of packs per carton. This price per pack was then averaged in with the prices reported by those who usually bought by the pack.

Between 1999 and 2002, the real price/cost of a pack of cigarettes increased about 8%, without new taxes.

In 1996, smokers paid on average \$2.21 per pack, which increased substantially and significantly by a factor of 59.7% to \$3.53 per pack in 1999, and only slightly, but still significantly, by a factor of 8.8% to \$3.84 per pack in 2002. Note that the average reported price paid and the average price reported to the FTC by the tobacco industry increased by a very similar amount between 1999 and 2002.

Figure 9.3 shows the average price smokers paid per pack according to level of cigarette consumption in 1996, 1999, and 2002. The average reported price paid per pack of cigarettes was inversely related to the amount smoked. In all years, non-daily and lighter (<15 cigarettes/day) daily smokers reported paying more per pack of cigarettes than did moderate (15-24 cigarettes/day) and heavy smokers (25+ cigarettes/day). The large price increase between 1996 and 1999 is apparent, and all groups experienced a small additional increase between 1999 and 2002, although the increase for heavy daily smokers was not statistically significant.

Figure 9.3: Average Reported Cost/Pack by Level of Cigarette Consumption



| | Cost Per Pack (\$) | | |
|-------------|--------------------|------|------|
| | 1996 | 1999 | 2002 |
| Non-daily | 2.44 | 3.97 | 4.19 |
| Daily 1-14 | 2.27 | 3.62 | 3.89 |
| Daily 15-24 | 2.10 | 3.41 | 3.62 |
| Daily 25+ | 1.94 | 3.22 | 3.35 |

Appendix Table A.9.1 presents the average price smokers reported paying per pack among various demographic subgroups. It shows that smokers aged 65 years and older, who tend to smoke more, experienced a greater cost increase between 1996 and 1999, and in contrast to younger smokers and to all other demographic groups, no increase at all between 1999 and 2002.

By combining information on the average price paid per pack of cigarettes with the average amount smoked per day, it is possible to determine the average amount of money smokers spent per month on cigarettes. Changes in the resulting amount spent per month could be due to either changes in consumption or in the reported price paid for cigarettes. In 2002, the average monthly expenditure on cigarettes for all smokers was \$65.66 (1.60), a slight nonsignificant decrease from the \$66.26 (1.43) spent per month by smokers in 1999.

Table 9.1 shows the changes in total monthly expenditures between 1999 and 2002, by household income, amount smoked, and quitting intentions. While the cost per pack increased slightly between 1999 and 2002, monthly expenditures remained essentially constant, suggesting that some smokers may be adjusting for price increases by smoking less.

Smokers with household incomes over \$75,000 showed the only significant increase in monthly expenditures, and likely at this income level there is little incentive to minimize the cost of smoking. However, as a whole, this income group did not pay the most each month for cigarettes. Monthly expenditures increased with the amount smoked, with heavy daily smokers spending over 3.5 times as much as light daily smokers in 2002. Nonetheless, in contrast to light and moderate daily smokers, who showed a significant increase in monthly expenditures, heavy smokers appear to have kept their monthly expenditures from rising between 1999 and 2002. Smokers who never expect to quit spent more per month on cigarettes, likely because they are heavier smokers.

| Table 9.1 Average Monthly Expenditure (\$2002) for Cigarettes by Household Income and Smoking Involvement | | | | |
|--|---------------|---------------|---------------|-------------------------------|
| | 1996 \$ | 1999 \$ | 2002 \$ | Factor Change 1999-2002 |
| Overall | 43.77 (0.68) | 66.26 (1.43) | 65.66 (1.60) | -0.9 |
| Income | | | | |
| ≤\$20,000 | 42.84 (1.41) | 61.67 (3.33) | 60.56 (3.35) | -1.8 |
| \$20,001-50,000 | 42.91 (1.02) | 65.57 (2.44) | 68.19 (2.89) | 4.0 |
| \$50,001-75,000 | 44.36 (1.58) | 66.98 (3.31) | 65.70 (4.06) | -1.9 |
| >\$75,000 | 44.21 (1.99) | 60.11 (3.22) | 67.18 (3.24) | 11.8 |
| Amount Smoked | | | | |
| Non-daily | 9.27 (0.57) | 13.95 (1.08) | 12.76 (1.55) | -8.5 |
| Daily <15/day | 27.62 (0.40) | 44.47 (0.81) | 47.20 (0.96) | 6.1 |
| Daily 15-24/day | 58.22 (0.58) | 94.12 (0.95) | 100.01 (1.29) | 6.3 |
| Daily 25+ | 102.35 (1.88) | 171.43 (4.65) | 174.43 (6.38) | 1.8 |
| Quitting Intentions | | | | |
| Never | 54.92 (2.48) | 74.43 (4.95) | 78.50 (7.24) | 5.5 |
| Not in 6 months | 44.28 (0.95) | 70.56 (2.17) | 68.81 (2.27) | -2.2 |
| Within 6 months | 40.04 (1.01) | 59.85 (1.99) | 60.31 (2.23) | 0.8 |

TABLE ENTRIES ARE MONTHLY EXPENDITURES IN \$2002 AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1996, 1999, 2002

Appendix Table A.9.2 shows the amount spent on cigarettes monthly for different demographic subgroups of smokers. Only one group, African Americans, showed even a marginally significant increase in monthly cigarette expenditures between 1999 and 2002.

Worry About Cigarette Cost

With the major increase in the price of cigarettes in 1999, it would be expected that smokers would be more concerned about how much they are spending on cigarettes. Smokers in the 1996, 1999, and 2002 CTS were asked the following question:

Are you worried about how much money you spend on cigarettes?

People who were worried about how much they were spending on cigarettes spent on average more each month than those who were not worried. In 2002, worried smokers spent an average of \$75.19 \pm 2.11 a month on cigarettes, compared to the \$54.43 \pm 2.34 a month spent by those who were not worried about the amount of money they spent on cigarettes. In 1996, these figures were \$47.52 \pm 1.16 and \$41.65 \pm 0.82, and in 1999 they were \$74.65 \pm 1.98 and \$56.00 \pm 1.99 for those worried and not worried, respectively. In 2002, both groups paid about the same price for a pack of cigarettes (~\$3.80), so the difference in monthly expenditures seems to be due to the not worried group containing more lighter/non-daily smokers.

Table 9.2 gives the percentages of smokers worried about how much money they spent on cigarettes, again by income and smoking involvement. While more smokers were worried about the amount of money they spent on smoking in 1999 compared to 1996, there was little change between 1999 and 2002 overall or in any subgroup. In both 2002 and 1999, just over half of smokers were worried about how much they spent on cigarettes, up from just over a third in 1996, before the price increases. In addition to income level, in each year there was a clear

relationship between the amount smoked and being worried about the amount spent on cigarettes in each year, as well as quitting intentions and being worried about cigarette expenditures.

| Table 9.2 | | | | |
|---|-------------|-------------|-------------|--------------------------------|
| Percentages of Smokers Worried About How Much They Spend on Cigarettes by Household Income and Smoking Involvement | | | | |
| | 1996 | 1999 | 2002 | Factor Change 1999-2002 |
| | % | % | % | |
| Overall | 35.1 (±1.3) | 52.5 (±1.9) | 51.7 (±1.6) | -1.5 |
| Income | | | | |
| ≤\$20,000 | 44.0 (±2.6) | 59.9 (±4.2) | 58.7 (±4.4) | -2.0 |
| \$20,001-50,000 | 33.6 (±1.6) | 53.4 (±2.7) | 55.7 (±3.2) | -4.3 |
| \$50,001-75,000 | 32.6 (±3.4) | 51.2 (±3.9) | 50.0 (±5.4) | -2.3 |
| >\$75,000 | 21.8 (±3.8) | 42.6 (±3.7) | 41.6 (±3.2) | -2.3 |
| Amount Smoked | | | | |
| Non-daily | 27.8 (±3.1) | 37.7 (±4.4) | 32.7 (±3.2) | -13.3 |
| Daily <15/day | 34.3 (±2.7) | 52.0 (±3.0) | 56.2 (±3.1) | 8.1 |
| Daily 15+ | 39.8 (±2.0) | 63.6 (±2.8) | 62.0 (±2.5) | -2.5 |
| Quitting Intentions | | | | |
| Never | 17.7 (±3.1) | 34.4 (±4.5) | 28.8 (±6.5) | -16.3 |
| Not in 6 months | 31.7 (±1.8) | 51.0 (±2.8) | 49.4 (±2.6) | -3.1 |
| Within 6 months | 44.1 (±1.5) | 59.1 (±2.7) | 58.5 (±2.6) | -1.0 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1996, 1999, 2002

Worry about the cost of cigarettes is related to higher cigarette consumption and intention to quit.

Heavy daily smokers (≥ 25 cigarettes/day), only comprised 8.2 \pm 0.9% of all California smokers in 2002. For the rest of this chapter, they are grouped with moderate daily smokers (15-24 cigarettes/day) to form a category of moderate-to-heavy daily smokers (29.9 \pm 1.5% of all smokers in 2002). Light daily smokers (<15 cigarettes/day), comprising 33.7 \pm 1.6% of all smokers in 2002, and non-daily smokers comprising 28.2 \pm 1.5% of all smokers in 2002 are the other groups examined.

Appendix Table A.9.3 presents the percentages of smokers worried about how much they spend on cigarettes by demographic subgroups of the population. No demographic subgroups showed a significant change between 1999 and 2002.

2. Support for a Further Cigarette Tax Increase

Since 1989, California has adopted several cigarette excise tax increases. According to voter-approved Proposition 99, 20% of the revenue from the \$0.25/pack excise tax increase was to fund the California Tobacco Control Program, and much of the remainder was to fund medical services. In 1993, a \$0.02/pack tax increase funded breast cancer care and research. In 1999, voters passed Proposition 10, which increased the excise tax on cigarettes by another \$0.50/pack. All of this new revenue went to support early childhood development programs, including a few tobacco-use prevention programs. The tax levied on cigarettes has not increased since 1999. However, the tobacco industry has increased cigarette prices slightly between 1999 and 2002, for a cumulative price increase of \$0.29/pack (in 2002 \$).

To gauge support for further cigarette excise tax increases, the CTS asked adults:

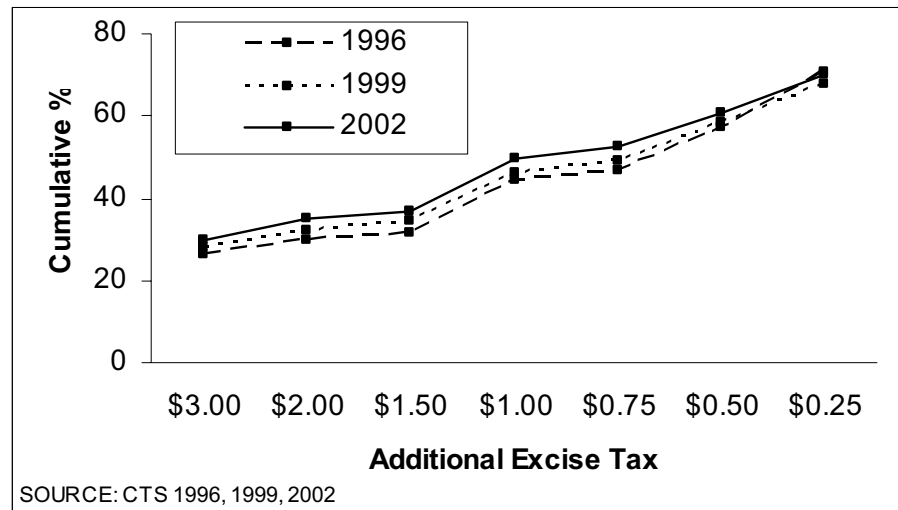
How much additional tax on a pack of cigarettes would you be willing to support if all the money raised was used to fund programs aimed at preventing smoking among children and other health care programs?

Answers could range between no increase and an increase of \$3.00.

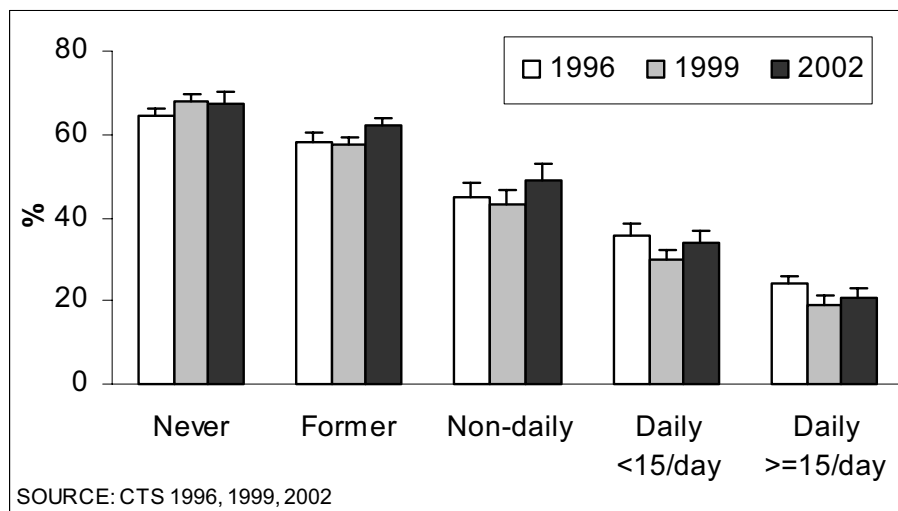
Figure 9.4 shows the cumulative level of overall support for tax increases of differing levels in 1996, 1999, and 2002.

In 2002, 60.7% of the California population supported at least a \$0.50/pack excise tax increase on cigarettes.

Over these years, and despite large increases in cigarette prices in 1999, support for additional taxes on cigarettes was slightly greater in 2002 than levels seen in 1996. In all 3 years, about 60% of adults supported an increase in the tax levied on cigarettes of at least \$0.50/pack; 57.1 \pm 1.2% in 1996, 58.2 \pm 1.3% in 1999, and 60.7 \pm 1.1% in 2002. In 2002, nearly half of Californians (49.8 \pm 1.0%) supported an excise tax increase of at least \$1.00/pack.

Figure 9.4: Cumulative Percentage Favoring Additional Cigarette Excise Tax

It would be expected that smokers might feel differently about excise tax increases than nonsmokers, and moderate-to-heavy smokers might be even less inclined to support a further tax increase. **Figure 9.5** shows support for at least a \$0.50/pack increase according to smoking status for 1996, 1999, and 2002.

Figure 9.5: Support for ≥\$0.50/pack Excise Tax Increase by Smoking Status and Year

As expected, smokers were significantly less likely to support a \$0.50/pack tax increase than never and former smokers, and non-daily smokers were more likely to support a tax increase than daily smokers. Smokers' support for a tax increase was not lower in 2002, compared to 1999 just after the price increases. Smokers' support for a new excise tax increase was significantly related to intention to quit smoking.

| | 1996 | 1999 | 2002 |
|---------------|------|------|------|
| Never | 64.5 | 67.7 | 67.4 |
| Former | 58.3 | 57.7 | 62.2 |
| Non-daily | 45.1 | 43.1 | 48.9 |
| Daily <15/day | 35.8 | 29.8 | 33.9 |
| Daily ≥15/day | 24.4 | 19.2 | 21 |

In 2002, 41.6% of smokers who intended to quit within the next six months supported a tax increase, compared to only 20.1% of those with no intention to quit, and 26.6% for those who intend to quit sometime in the future, but not in the next six months.

Appendix Table A.9.4 shows support for a \$0.50/pack tax increase by demographic characteristics. Support was significantly and directly related to income and education, and inversely related to age. Between 1999 and 2002, women increased their support for a tax increase more than men.

The findings of this section indicate continued support for further excise tax increases. Support is greater among nonsmokers, but the level of support for a new tax has not declined among smokers. Smokers now make up just 15.4% of the adult population in California (see Chapter 2), and smokers who intend to quit soon were more supportive than other smokers.

3. Purchasing Behaviors

While the real price per pack of cigarettes increased slightly between 1999 and 2002, monthly expenditures for cigarettes did not; suggesting that some smokers have managed to curtail how much they spent on cigarettes. To reduce the amount of money they spent on cigarettes, smokers may have switched to purchasing by the carton instead of by the pack, or they may shop around for outlets where the price is lower, or even seek out non-taxed sources of cigarettes. They might also shop around for stores featuring special promotional offers that allow them to buy cigarettes more cheaply. This section explores changes in California smokers' purchasing behaviors and smokers' perceptions of how cost influences them.

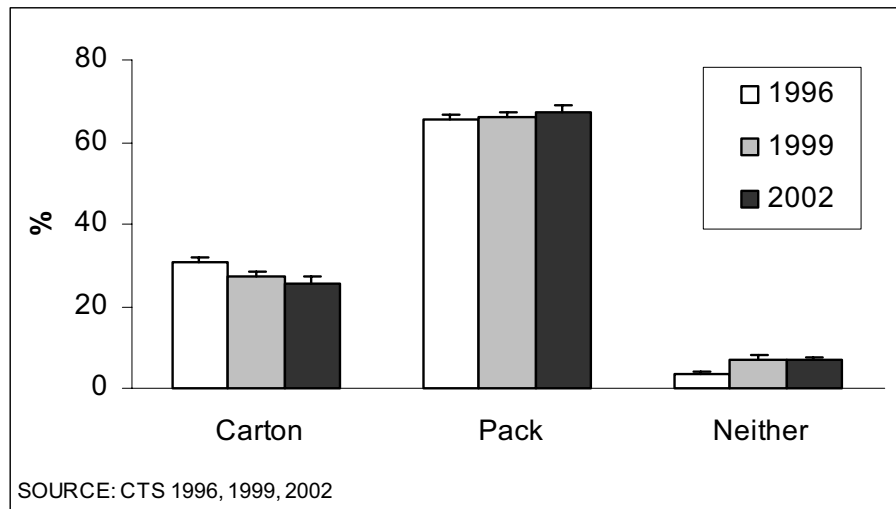
Purchasing by the Pack or Carton

In 2002, cigarettes bought by the pack were more expensive by a factor of 38% than those bought by the carton; the average price/pack for carton buyers was \$3.01, while the average price/pack for pack buyers was \$4.15. In 1999, the differential in the price/pack for pack buyers compared to carton buyers was a factor of 29%: the average price/pack paid by carton buyers was \$2.92, while the average price/pack for pack buyers was \$3.77. The dollar amounts reported above are all adjusted to 2002 \$. Since the carton-pack cost differential was higher in 2002, smokers should have had a greater cost-incentive to buy by the carton.

Despite an increased pack-carton price differential in 2002, significantly fewer smokers are buying by the carton in 2002 compared to 1996.

Figure 9.6 shows the percentages of smokers buying by the carton, by the pack or neither in 1996, 1999, and 2002. Smokers who reported rolling their own cigarettes, buying a few at a time, or “bumming” cigarettes from other smokers are included in the “neither” category. Contrary to expectations, smokers have not switched to buying by the carton to minimize the cost of smoking. In fact, significantly fewer smokers bought by the carton in 2002 than in 1996. Most of the decline in purchasing by the carton was made up by more smokers in the “neither” category.

Figure 9.6: Smokers Buying Cigarettes by Pack or Carton



| | 1996 | 1999 | 2002 |
|---------|------|------|------|
| Carton | 30.9 | 27.1 | 25.7 |
| Pack | 65.6 | 65.9 | 67.2 |
| Neither | 3.5 | 7.0 | 7.0 |

As will be seen later in this section, this slight shift in purchasing behavior may reflect the increased upfront cost of buying a carton of cigarettes. It might also reflect smokers' desire to spend a fixed amount on cigarettes each week or month. With a carton on hand, they might smoke at a faster rate and need to buy more cigarettes, exceeding their budget. Perhaps they feel they have more control over their budget if they buy by the pack, even if the unit price is more.

Table 9.3 presents the percentages buying by the carton in the various survey years according to income and the other variables that might influence purchasing behavior. There was little difference among income groups in the percentages of smokers purchasing cigarettes by the carton, although lower income groups exhibited this purchasing behavior less than higher income groups. Smokers in households with a yearly income under \$20,000 have moved away from buying their cigarettes by the carton. The factor decline for this group between 1996 and 2002 was 23.7%. However, smokers in middle income households also showed substantial declines over this period.

| Table 9.3 Percentage of Smokers Purchasing Their Cigarettes by the Carton by Household Income and Smoking Involvement | | | | |
|--|-------------|-------------|-------------|--|
| | 1996 | 1999 | 2002 | Factor Decrease 1996-2002 |
| | % | % | % | |
| Overall | 30.9 (±1.1) | 27.1 (±1.5) | 25.7 (±1.5) | -16.8 |
| Income | | | | |
| ≤\$20,000 | 27.4 (±2.3) | 24.1 (±3.3) | 20.9 (±3.3) | -23.7 |
| \$20,001-50,000 | 32.4 (±2.2) | 26.8 (±2.8) | 26.1 (±2.8) | -19.4 |
| \$50,001-75,000 | 32.3 (±4.0) | 30.6 (±2.8) | 27.3 (±3.6) | -15.5 |
| >\$75,000 | 29.8 (±4.3) | 27.6 (±3.2) | 28.5 (±3.5) | 4.4 |
| Amount Smoked | | | | |
| Non-daily | 6.4 (±1.4) | 6.4 (±1.5) | 5.8 (±2.0) | -9.4 |
| Daily <15/day | 22.7 (±2.2) | 21.3 (±2.2) | 21.6 (±2.2) | 4.8 |
| Daily 15+ | 49.9 (±1.8) | 46.4 (±2.4) | 43.9 (±3.2) | -12.0 |
| Quitting Intentions | | | | |
| Never | 51.8 (±3.1) | 41.8 (±5.4) | 45.7 (±5.7) | 11.8 |
| Not in 6 months | 34.1 (±1.8) | 30.2 (±2.3) | 29.1 (±2.2) | -14.7 |
| Within 6 months | 21.2 (±2.0) | 20.0 (±1.5) | 18.7 (±1.9) | -11.8 |
| Worry About Cost | | | | |
| Yes | 30.8 (±2.1) | 29.5 (±2.1) | 26.5 (±2.2) | -14.0 |
| No | 31.0 (±1.3) | 24.5 (±2.4) | 24.9 (±2.4) | -19.7 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1996, 1999, 2002

Moderate-to-heavy smokers are more likely to buy cigarettes by the carton.

Purchasing cigarettes by the carton was significantly more prevalent among moderate-to-heavy daily smokers and among smokers who never expect to quit than the relevant comparison groups. The overall decline between 1996 and 2002 was significant for moderate-to-heavy smokers. Smokers who never expect to quit showed a significant decline in buying by the carton after the price increase in 1999, but showed increased buying by the carton again by 2002 (not significant).

Thus, while smokers could reduce the cost of their smoking and minimize any price increases by buying cigarettes by the carton rather than by the pack, the number of smokers who may have adopted this cost-saving practice were more than offset by those who switched to getting their cigarettes in another manner.

Reasons for Purchasing by the Pack Instead of by the Carton

To investigate why more smokers do not buy their cigarettes by the carton, the 2002 CTS asked smokers who bought cigarettes by the pack:

Since cigarettes are cheaper by the carton, why do you buy them by the pack?

This question was open ended, and pack buyers gave their primary reason for buying by the pack. Responses were then coded into appropriate categories for analysis. However, the categorization is not exact. For instance, insisting that cigarettes are cheaper by the pack may reflect a lack of knowledge about per pack cost when bought by the carton, or indicate that some smoker are getting deals when they buy by the pack that bring the price below what they would expect to pay per pack if they bought by the carton.

The number one reason smokers gave for buying by the pack is to control their smoking.

Table 9.4 shows the coded responses by cigarette consumption level and intentions to quit. Overall, the main reason smokers gave for buying by the pack, rather than by the carton, was that this purchasing strategy helped them to control their smoking. Whether the desire to control the number of cigarettes smoked was motivated by health concerns or by financial concerns cannot be determined from these data. The next most commonly given reason was that the upfront cost of a carton of cigarettes was not affordable.

| Table 9.4. | | | | | | | |
|---|----------------|--------------------------|-------------------|----------------|----------------------------|-----------------|-----------------|
| Reasons Pack Buyers Give for Buying by the Pack Instead of by the Carton | | | | | | | |
| | Overall | Consumption Level | | | Quitting Intentions | | |
| | | Non-Daily | Daily | Daily | Never | Not in | Within |
| | % | % | <15/day | ≥15/day | % | 6 months | 6 months |
| | | | % | % | | % | % |
| Would smoke too much with carton | 39.6 (±2.1) | 42.6 (±3.3) | 42.5 (±3.1) | 32.5 (±3.4) | 28.2 (±8.4) | 36.2 (±2.9) | 43.6 (±3.2) |
| Carton costs too much | 14.7 (±1.5) | 7.11 (±1.5) | 15.9 (±2.8) | 21.9 (±3.1) | 14.0 (±5.9) | 17.8 (±2.8) | 12.3 (±2.1) |
| Don't smoke enough for carton | 10.2 (±1.8) | 25.1 (±4.4) | 4.2 (±1.8) | 0.4 (±0.6) | 20.6 (±12.1) | 10.2 (±2.1) | 8.8 (±1.9) |
| More convenient | 9.6 (±1.3) | 5.3 (±1.3) | 11.1 (±2.3) | 12.6 (±2.3) | 7.8 (±5.6) | 12.2 (±2.2) | 7.7 (±1.4) |
| Plan to quit—don't want leftovers | 8.4 (±1.0) | 6.5 (±1.8) | 8.7 (±1.9) | 10.4 (±1.9) | 1.5 (±1.5) | 3.4 (±1.3) | 13.2 (±1.6) |
| Cost does not matter | 3.0 (±0.7) | 1.8 (±1.0) | 2.6 (±1.0) | 4.8 (±1.5) | 5.6 (±3.6) | 3.7 (±1.2) | 2.0 (±0.8) |
| Cheaper by the pack | 2.4 (±0.6) | 0.7 (±0.6) | 2.5 (±0.9) | 4.1 (±1.9) | 1.1 (±1.7) | 2.5 (±1.3) | 2.4 (±0.7) |
| Cigarettes fresher | 2.2 (±0.5) | 3.7 (±1.3) | 1.9 (±0.7) | 0.9 (±0.6) | 5.5 (±3.5) | 2.7 (±0.9) | 1.4 (±0.6) |
| Buying by carton means I'm addicted | 1.2 (±0.4) | 1.6 (±0.9) | 1.0 (±0.6) | 0.9 (±0.7) | 2.8 (±4.1) | 0.9 (±0.5) | 1.2 (±0.6) |
| Other/ unknown | 8.9 (±1.2) | 5.6 (±1.4) | 9.8 (±1.9) | 11.6 (±2.6) | 12.8 (±5.2) | 10.4 (±1.9) | 7.3 (±1.5) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 2002

Moderate-to-heavy smokers were significantly more likely to say they bought cigarettes by the pack because of the much larger single financial outlay needed to purchase a carton of cigarettes. Also, moderate-to-heavy smokers were more likely to insist that cigarettes are cheaper by the pack; perhaps they are taking advantage of promotional offers that reduce the per pack cost of cigarettes. In contrast, lighter smokers were more likely to say that they bought cigarettes by the pack as a way to control how much they smoked.

Compared to other smokers, those who intended to quit in the next six months were significantly more likely to usually buy by the pack, both because they didn't want

leftover cigarettes and as a way to control how much they smoked. Moderate-to-heavy smokers compared to non-daily smokers and those who never expect to quit compared to those who expect to quit in the next six months were more likely to indicate that cost does not matter; perhaps they have resigned themselves to the necessity of cigarettes in their lives and have already taken what steps they can to reduce the cost.

Buying cigarettes by the pack instead of by the carton as a way to control the amount smoked is an example of willingly paying more to consume less that has been suggested previously (Thaler & Shefrin, 1981; O'Donoghue & Rabin, 2000), but not documented until now with respect to smoking. However, it is unclear whether smokers are engaging in this behavior in order to improve their health or control their budget.

How Price has Influenced Purchasing Decisions and/or Smoking Behavior

In 2002, the CTS asked additional questions to gain a better understanding how price may have influenced purchasing behavior. Smokers could answer yes or no to each of the following questions:

Has the price of cigarettes influenced:

How much you smoke?

Where you buy cigarettes?

The brand you smoke?

Your desire to quit?

Table 9.5 shows how the cost of cigarettes influenced smokers with respect to each of these potential money-saving behaviors. It indicates that, in general, the price of cigarettes had the most impact on where smokers bought their cigarettes and the least influence on the cigarette brand smoked.

Smokers were most likely to say price influenced where they bought their cigarettes.

Household income was highly and significantly related to smokers indicating that cigarette prices affected how much they smoked, the brand they smoked, and their desire to quit. Smokers with annual incomes under \$20,000 were particularly likely to indicate that the price of cigarettes influenced how much they smoked. Not surprisingly, price appeared to influence the wealthiest smokers least.

For smoking level, the behavioral pattern most influenced by price was where smokers bought their cigarettes. Apparently, moderate-to-heavy smokers are shopping around for lower prices. They may also be switching to cheaper brands. In general, non-daily smokers were the least influenced to take any action (significant for all actions) to reduce the cost of their cigarettes.

About three times as many smokers intending to quit smoking in the next six months thought the price of cigarettes influenced how much they smoked, compared to smokers never intending to quit. About a 3-fold difference was also observed with respect to how price influences desire to quit and expressed intention to quit. These differences were highly significant and indicate that price appears to be an important stimulant to quitting.

Smokers worried about how much they spent on cigarettes were significantly more likely to cite each of the purchasing behaviors as influenced by cigarette price than those not worried about cigarette cost.

The results presented above suggest that one of the main strategies smokers use to reduce the cost of their smoking was to change where they bought their cigarettes. As the price of cigarettes varies considerably by retail outlet (Emery et al., 2002), this strategy could reduce the amount of money smokers spend on cigarettes.

Where Smokers Buy Cigarettes

In 2002, nearly 60% of smokers indicated that the price of cigarettes had influenced where they bought their cigarettes. Since California has one of the higher cigarette excise taxes in the United States, smokers may be able to reduce the cost of their cigarettes by purchasing them out of state, either by personally visiting another state or using the Internet. Smokers may also minimize the price they pay for cigarettes by purchasing them at tax-free locations such as Indian reservations and military commissaries.

| Table 9.5 How Price of Cigarettes Has Influenced Smokers' Purchasing Patterns | | | | |
|--|-----------------|----------------------|--------------|----------------|
| | How Much Smoked | Where Buy Cigarettes | Brand Smoked | Desire to Quit |
| | % | % | % | % |
| Overall | 36.0 (±1.6) | 59.4 (±1.6) | 28.9 (±1.7) | 48.2 (±1.8) |
| Income | | | | |
| ≤\$20,000 | 46.8 (±3.9) | 60.8 (±3.6) | 44.1 (±3.5) | 55.7 (±3.8) |
| \$20,001-50,000 | 37.3 (±2.7) | 61.9 (±2.9) | 30.8 (±2.6) | 49.8 (±2.7) |
| \$50,001-75,000 | 33.4 (±4.2) | 59.0 (±4.8) | 23.8 (±3.9) | 50.7 (±4.8) |
| >\$75,000 | 26.4 (±2.9) | 56.3 (±3.8) | 15.1 (±2.3) | 36.9 (±3.4) |
| Amount Smoked | | | | |
| Non-daily | 34.2 (±3.2) | 38.4 (±3.8) | 21.5 (±2.9) | 40.1 (±3.8) |
| Daily <15/day | 43.0 (±2.3) | 62.8 (±2.5) | 28.6 (±2.5) | 53.8 (±2.7) |
| Daily 15+ | 31.2 (±2.4) | 71.8 (±2.7) | 34.7 (±2.7) | 49.5 (±2.8) |
| Quitting Intentions | | | | |
| Never | 14.9 (±3.6) | 49.8 (±5.9) | 27.4 (±5.0) | 20.3 (±6.9) |
| Not in 6 months | 34.2 (±2.7) | 60.9 (±2.4) | 29.5 (±2.3) | 40.2 (±2.6) |
| Within 6 months | 42.0 (±2.3) | 59.9 (±2.7) | 28.6 (±2.5) | 61.2 (±2.7) |
| Worry About Cost | | | | |
| Yes | 50.6 (±2.1) | 73.1 (±2.0) | 37.7 (±2.5) | 70.0 (±2.3) |
| No | 20.4 (±1.9) | 44.6 (±2.6) | 19.4 (±2.3) | 24.9 (±2.3) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS: 2002

In 1999 and 2002, smokers were asked the following question:

Do you usually buy your cigarettes in California, out of state or over the Internet?

Smokers answering that they usually bought their cigarettes in California were asked the following:

Where do you usually buy your cigarettes? Do you buy them

At convenience stores or gas stations,

At supermarkets,

At liquor stores or drug stores,

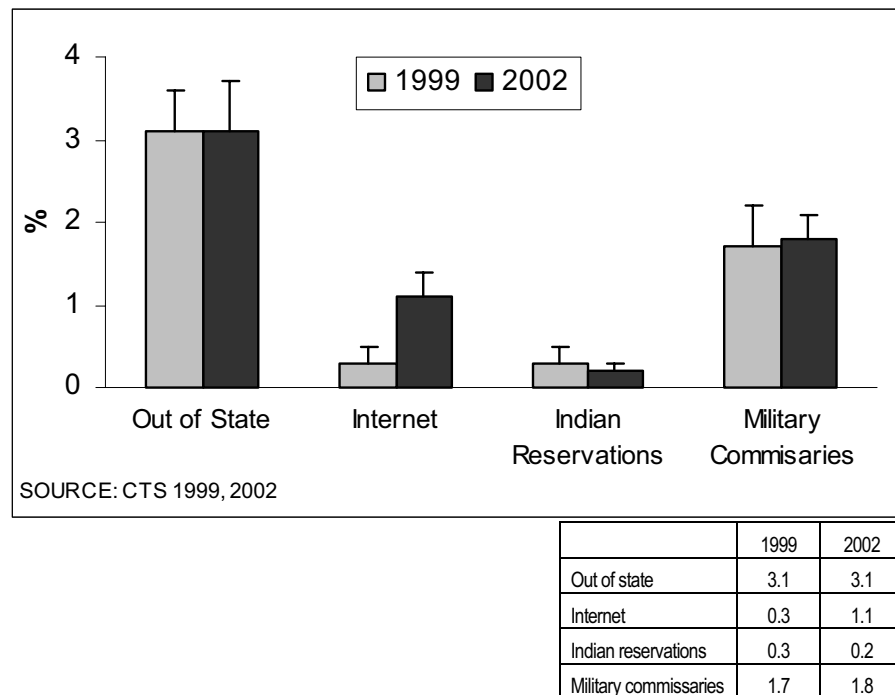
At tobacco discount stores,

At other discount stores such as Wal-Mart,

On Indian reservations, or

In military commissaries?

Figure 9.7 shows that very low percentages of California smokers usually purchased their cigarettes from the sources that avoid taxes, and that these percentages have not changed much between 1999 and 2002. Altogether, 5.3 \pm 0.8% of smokers in 1999 and 6.3 \pm 0.6% of smokers in 2002 bought cigarettes from these sources. Internet sales were up significantly, but this source accounted for only a very small percentage of the usual purchasing habits of California smokers, 1.1 \pm 0.3% in 2002 compared to 0.3 \pm 0.2% in 1999. More smokers may use these sources infrequently, only when it is convenient. In 2002, smokers who routinely avoided taxes paid on average \$2.54 \pm 0.11/pack for their cigarettes, compared to \$3.93 \pm 0.02/pack for all other smokers, a significant and considerable average savings of \$1.39/pack. This casual tax evasion, some of it perfectly legal, should not be used as a justification for not increasing cigarette excise taxes further (Alamar et al., 2003).

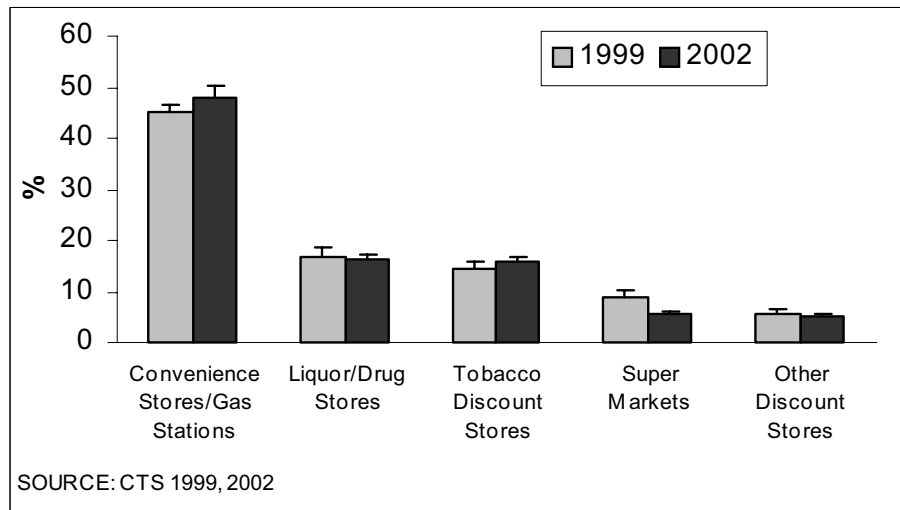
Figure 9.7: Smokers Avoiding California Excise Taxes

An examination of the collective use of lower or non-taxed cigarette sources by demographics indicated that age was the only factor significantly related to usually buying cigarettes from these sources. In 2002, while 12.7% of smokers aged 65 years and older usually bought cigarettes from such sources, only 4.4% of smokers 18 to 24 years of age did so. Perhaps older smokers have more time to seek out these much cheaper sources of cigarettes than younger smokers.

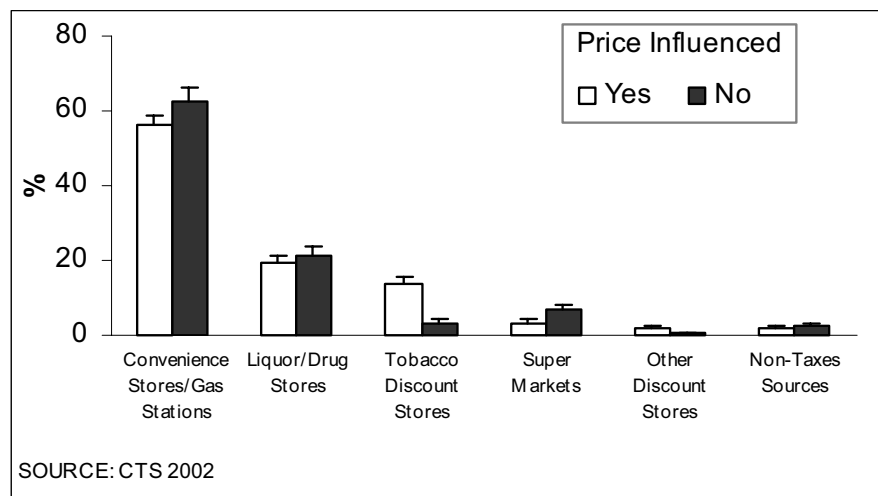
Because cigarettes are more expensive at convenience stores, gas stations, and liquor or drug stores compared to supermarkets or discount stores (Emery et al., 2002), smokers could minimize the price they paid for cigarettes by purchasing them from the cheaper outlets.

Figure 9.8 shows the types of stores where smokers usually bought their cigarettes in 1999 and 2002. Contrary to expectation, smokers have not shifted their purchasing away from the more expensive outlets. In fact, there was a slight but significant increase in the percentage buying at convenience stores/gas stations in 2002, and a corresponding slight but significant decline in the percentage buying at supermarkets.

In 2002, 59.4% of smokers indicated that cigarette price had influenced where they bought cigarettes. **Figure 9.9** shows where smokers who said price influenced where they bought cigarettes were buying their cigarettes, compared to smokers indicating that the price of cigarettes had not influenced where they bought cigarettes. These data are presented for pack buyers only.

Figure 9.8: Where Smokers Buy Their Cigarettes

| | 1999 | 2002 |
|---------------------------------|------|------|
| Convenience Stores/Gas Stations | 44.9 | 48.1 |
| Liquor/Drug Stores | 16.8 | 16.1 |
| Tobacco Discount Stores | 14.5 | 15.6 |
| Supermarkets | 8.9 | 5.4 |
| Other Discount Stores | 5.7 | 5.1 |

Figure 9.9: Usual Source of Cigarettes for Pack Buyers Who Said Price Did and Did Not Influence Where They Bought Their Cigarettes

Pack buyers who said price influenced where they bought cigarettes paid \$4.02±0.03/pack, compared to the \$4.31±0.03/pack paid by those who did not indicate that price influenced where they bought cigarettes, significantly less but only a modest saving. The price-influenced pack buyers were significantly more likely to buy their cigarettes at tobacco discount

| | Price Influenced | |
|---------------------------------|------------------|------|
| | Yes | No |
| Convenience stores/gas stations | 56.3 | 62.6 |
| Liquor/drug stores | 19.3 | 21.2 |
| Tobacco discount stores | 13.9 | 3.1 |
| Supermarkets | 3.2 | 6.6 |
| Other discount stores | 1.9 | 0.4 |
| Non-taxes sources | 2.0 | 2.2 |

stores than were other smokers and were significantly less likely to buy cigarettes at supermarkets and convenience stores or gas stations than were other smokers.

In 2002, 63.9% of smokers still bought their cigarettes by the pack at the most expensive retail outlets.

Overall in 2002, slightly but not significantly more smokers (63.9 \pm 1.8%) bought cigarettes by the pack at the most expensive outlets (convenience stores or gas stations and liquor or drug stores) compared to 1999 (61.4 \pm 1.8%). In 2002, these smokers paid on average \$4.21 \pm 0.02/pack, nearly a dollar more (significant), than smokers buying by the carton and/or from other sources, \$3.30 \pm 0.04/pack.

Given the large percentage of smokers who said that price influenced where they bought cigarettes, it is interesting that the differences were not more marked, and that even the vast majority (78.3 \pm 2.1%) of pack buyers who said price influenced where they buy cigarettes usually bought them at the most expensive retail outlets. However, it is possible that some smokers who are shopping around for lower cost cigarettes may be finding them at these outlets and at tobacco discount stores. Recent research suggests that tobacco companies pay these types of outlets to put their cigarette brands on sale (Feighery et al., 2003). Such sales are called “buy-downs” and the company reimburses the merchant for the entire differential between the sale and regular price.

Promotional offers

As shown in Chapter 10, the amount of money tobacco companies spend on promotional allowances to retail outlets has increased dramatically since the early 1990s (USFTC, 2003). Promotional allowances include the money spent for buy-downs as well as for advertising to promote these sales. These promotional practices may be subsidizing the price consumers pay for cigarettes. While smokers may not shop around for a current sale, they likely take advantage of these offers when they see them, and may tend to patronize the stores more likely to feature them, which are convenience stores/gas stations, liquor stores and tobacco discount stores (Feighery et al., 2003).

In the 2002 CTS, smokers were asked the following:

About how often do you take advantage of promotional offers such as “dollar off,” “two for the price of one”?

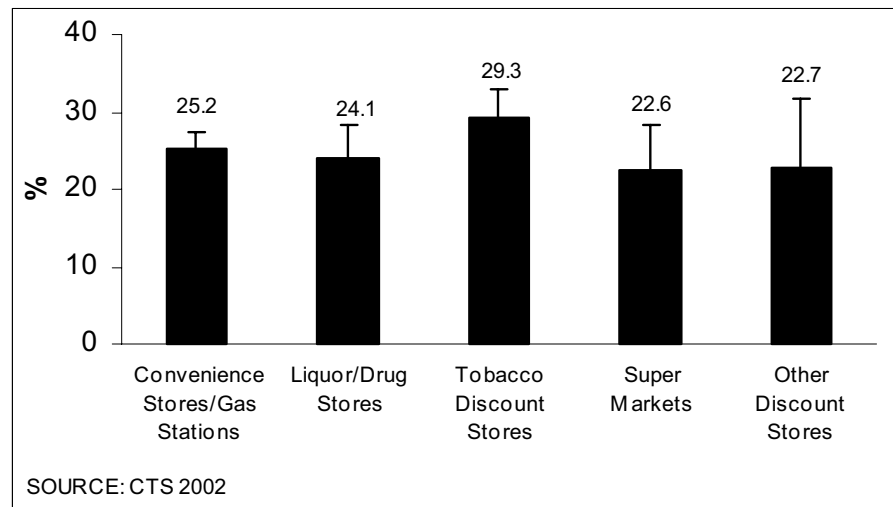
And

About how often do you see such an offer?

About a quarter of California smokers (23.3 \pm 1.5%) reported that they see such offers at least half the time they go to buy cigarettes, and 32.7 \pm 1.4% said that they take advantage of such an offer every time they see one. Perhaps the brand on sale is not the brand they usually smoke or a brand they would be willing to smoke. Pack buyers who routinely took advantage of promotional offers paid an average of \$4.07 \pm 0.04 per pack, compared to \$4.19 \pm 0.03 for those who did not routinely take advantage of these offers, not a large saving. However, it is possible that smokers may not have factored their savings from promotional offers when they reported the price they usually paid for cigarettes.

Figure 9.10 shows the relationship between seeing these offers and the retail outlets smokers usually patronized. While smokers who usually buy their cigarettes in convenience stores/gas stations, liquor/drug stores and tobacco discount stores, compared to supermarkets and other discount stores see these offers slightly more often, the differences were not significant. However, the store where smokers see an offer may not be the same store where they usually choose to buy their cigarettes.

Figure 9.10: Smokers Seeing Promotional Offers by Type of Store They Usually Patronize



Moderate-to-heavy smokers are more likely to take advantage of promotional offers.

The only factor significantly related to taking advantage of promotional offers was consumption level. Non-daily smokers were less likely to notice them at least half the time they bought cigarettes (18.0 \pm 2.9%) or take advantage of them every time they saw them (12.4 \pm 2.2%) compared to moderate-to-heavy smokers, for whom these percentages were 25.6 \pm 2.3% and 45.9 \pm 2.2%, respectively. Light daily smokers saw the offers with about the same frequency (25.0 \pm 2.2%) as heavier smokers, but took advantage of them less (35.0 \pm 3.1%).

Periodic sales on cigarettes may not consistently save consumers a lot of money, but may make them think that they are spending less and keep customers coming back to the stores that feature them. Thus, one strategy of the tobacco industry might be to make smokers think that, despite high taxes, they can still afford to buy cigarettes by taking advantage of sales. Also, by providing a way for the price-sensitive consumer to buy cigarettes more cheaply, the industry can continue to slowly raise prices to pay for the promotions.

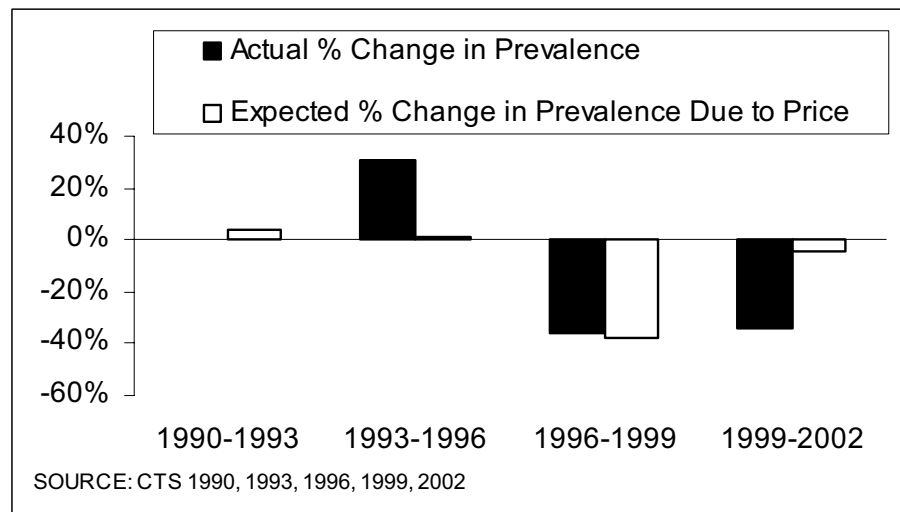
4. Adolescents

The price elasticity of demand for adolescents is generally believed to be about three times higher than that for adults (Lewit et al., 1981; Chaloupka & Grossman, 1996), and it is also believed that changes in participation account for about 80% of total price elasticity of demand. Similar to the analysis for adults, the expected change in adolescent smoking participation can be computed as:

Expected % change in prevalence = (adolescent participation elasticity) x (% change in price).

Figure 9.11 shows the expected changes based on a conservative participation elasticity of -0.6, together with the observed percentage changes in adolescent smoking prevalence.

Figure 9.11: Actual and Expected Changes in Adolescent Prevalence



As for adults, the steep 1999 price increase affected smoking behavior in adolescents, but recent declines in smoking have continued despite a period of relative price stability.

When the price of cigarettes increased substantially (between 1996 and 1999) the expected and actual changes in adolescent smoking participation were similar. This was not the case between 1993 and 1996, when adolescent smoking increased significantly during a period of relatively stable cigarette prices. Between 1999 and 2002, adolescent smoking again declined significantly during a period of relatively stable cigarette prices. These results suggest that there is more influencing adolescent smoking than the price of cigarettes. However, when cigarette prices change substantially, price has an important influence.

When adolescents are beginning to experiment with smoking, they are most likely to get their cigarettes from friends (Emery et al., 1999). As they become more committed to smoking, adolescents are increasingly

likely to buy their own cigarettes. For instance, in 2002, only 23.9% of current experimenters indicated that they bought their own cigarettes, either themselves or through an intermediary, but 72.1% of current established smokers usually bought their own cigarettes. More data on usual source of cigarettes is presented in Chapter 11. Altogether, in the 2002 CTS, only 142 adolescent current smokers reported that they usually bought cigarettes, and thus would directly experience the price of cigarettes. This is too few to analyze and contrast with results from 1999. However, in the total California adolescent population, this translates to 70,895 individuals, so this is not an issue that public policy planning should ignore.

5. Summary

Since the unprecedented cigarette price increase of 1999, prices have remained fairly stable, increasing only slightly between 1999 and 2002. Over this period, the average price/pack of cigarettes reported by the tobacco industry and the price California smokers reported paying increased by about the same amount (~8%). In 2002, the FTC published average price was \$4.08/pack and smokers reported paying an average of \$3.84/pack. While the expected change in per capita cigarette consumption due to price elasticity and the actual observed change agreed closely between 1998 and 1999, per capita consumption has continued to decline despite relatively stable prices since then. This finding was also observed during the period between the two California excise tax increases. The price elasticity of adolescent smoking participation showed a similar pattern. Clearly, other tobacco control strategies besides increasing cigarette prices are also discouraging smoking behavior.

After a substantial increase between 1996 (\$43.77) and 1999 (\$66.26), smokers' reported monthly expenditures on cigarettes changed little between 1999 and 2002 (\$65.66). The percentage worried about how much they spent on cigarettes also remained relatively unchanged between 1999 (52.5%) and 2002 (51.7%). Perhaps the shock of the 1999 tax increase has diminished. Alternatively, perhaps some smokers concerned about price have taken steps to control the cost of their smoking, such as changing how and where they buy cigarettes, smoking less, or even quitting.

In 2002, support for a further excise tax increase of at least \$0.50/pack of cigarettes showed modest increases among smokers and nonsmokers. Overall, 60.7% of the population supported at least a \$0.50/pack tax increase, compared to 58.2% in 1999 and 57.1% in 1996.

To reduce the amount they spend on cigarettes, smokers could switch to buying by the carton, shop around for outlets with lower prices in general, seek out non-taxed sources, or look for deals on cigarettes such as cents-off or multiple-pack discounts. Despite an increase in the pack vs. carton per pack-cost differential in 2002 (38% more expensive by pack) compared to 1999 (29% more expensive by pack), the percentage of smokers buying cigarettes by the carton decreased slightly from 30.9% in 1996 to 27.1% in 1999 and to 25.7% in 2002. In 2002, the main reason smokers gave for buying by

the pack is that it helps them control how much they smoke (39.6 \pm 2.1%). The next most frequently cited reason was that the upfront cost of a carton was unaffordable (14.7 \pm 1.5%).

In 2002, more smokers said that the price of cigarettes influenced where they bought cigarettes (59.4 \pm 1.6%), than their desire to quit (48.2 \pm 1.8%), how much they smoked (36.0 \pm 1.6%), or the brand they smoked (28.9 \pm 1.7%). In 2002, the majority of smokers continued to buy cigarettes by the pack at the most expensive outlets, convenience stores/gas stations and liquor/drug stores (63.9 \pm 1.8% in 2002 vs. 61.4 \pm 1.8% in 1999).

Despite the high percentage saying that price influenced where they bought cigarettes, few California smokers sought out lower or non-taxed sources of cigarettes (6.3 \pm 0.6% in 2002 vs. 5.3 \pm 0.8% in 1999), such as buying out of state, over the Internet, at Indian reservations or at military commissaries. Internet sales did increase significantly from 0.3 \pm 0.2% in 1999 to 1.1 \pm 0.3% in 2002, but still account for a very small fraction of usual purchases. Some of these casual tax-evasion purchases are perfectly legal, but they should not be used as justification for suppressing further excise tax increases (Alamar et al., 2003).

Some smokers appear to take advantage of promotional offers that subsidize cigarette prices. However, those who took advantage of such an offer every time they saw one spent on average \$4.07 \pm 0.04/pack compared to \$4.19 \pm 0.03/pack for other smokers, not a huge saving. Promotional offers were seen by 23.3 \pm 1.5% of California smokers at least half the time they bought cigarettes in 2002, and 32.7 \pm 1.4% of smokers said they took advantage of these offers every time they saw one, which suggests that tobacco industry emphasis on such promotions is a successful marketing strategy (Chaloupka et al., 2002). It is important to monitor how the tobacco industry is employing and modifying, perhaps on a neighborhood basis, this apparently successful marketing strategy. While subsidizing cigarette prices for the most price-sensitive customers, the tobacco industry appears to be able to sustain small and incremental price increases.

The findings of this chapter suggest that while price plays a role, other factors besides price influence smokers' purchasing and smoking behavior. Despite what smokers say concerning their worry about price and how it influences their smoking, the majority continues to buy cigarettes by the pack at the most expensive outlets. Many do this to control the amount they smoke. This finding, together with sustained support for a further excise tax increase, suggests that it is again time to make use of this policy tool.

Chapter

9

APPENDIX

Price, Taxes, and Purchasing Behavior

1. Amount Smokers Spent on Cigarettes in Demographic Subgroups

Table A.9.1 shows the average price per pack of cigarettes that smokers reported paying in different demographic groups. Females pay less per pack than males, and young smokers pay more than older smokers. Minorities pay more than Non-Hispanic Whites, and those with less education pay more than those with more education. Some of these differences are likely due in part to consumption level and, in part, to the types of stores patronized. Smokers aged 65 years and older, who tend to smoke more, experienced a greater cost increase between 1996 and 1999, and in contrast to younger smokers and to all other demographic groups, no increase at all between 1999 and 2002.

| Table A.9.1 Average Price per Pack Bought by California Smokers (\$2002) | | | | |
|---|--------------|--------------|--------------|----------------------------|
| | 1996 | 1999 | 2002 | Factor Change 1999-2002 |
| | \$ | \$ | \$ | % |
| Overall | 2.21 (±0.02) | 3.53 (±0.02) | 3.84 (±0.02) | 8.8 |
| Gender | | | | |
| Male | 2.24 (±0.02) | 3.59 (±0.03) | 3.88 (±0.03) | 8.1 |
| Female | 2.17 (±0.02) | 3.46 (±0.03) | 3.78 (±0.04) | 9.2 |
| Age | | | | |
| 18-24 | 2.46 (±0.04) | 3.79 (±0.06) | 4.19 (±0.05) | 10.6 |
| 25-44 | 2.28 (±0.02) | 3.63 (±0.03) | 3.97 (±0.04) | 9.4 |
| 45-64 | 2.02 (±0.03) | 3.31 (±0.04) | 3.56 (±0.04) | 7.6 |
| 65+ | 1.90 (±0.05) | 3.14 (±0.10) | 3.11 (±0.10) | 0.9 |
| Race/Ethnicity | | | | |
| African American | 2.27 (±0.04) | 3.62 (±0.09) | 3.99 (±0.09) | 10.2 |
| Asian/PI | 2.31 (±0.04) | 3.65 (±0.09) | 3.93 (±0.10) | 7.7 |
| Hispanic | 2.36 (±0.04) | 3.67 (±0.06) | 4.03 (±0.06) | 9.8 |
| Non-Hispanic White | 2.15 (±0.02) | 3.46 (±0.03) | 3.74 (±0.03) | 8.1 |
| Education (yrs) | | | | |
| <12 | 2.19 (±0.03) | 3.69 (±0.05) | 4.19 (±0.07) | 13.5 |
| 12 | 2.18 (±0.02) | 3.62 (±0.03) | 3.89 (±0.04) | 7.5 |
| 13-15 | 1.19 (±0.02) | 3.41 (±0.03) | 3.62 (±0.04) | 6.2 |
| 16+ | 2.32 (±0.03) | 3.22 (±0.04) | 3.35 (±0.06) | 4.0 |

TABLE ENTRIES ARE DOLLARS (\$2002) PER PACK AND 95% CONFIDENCE LIMITS.
SOURCE CTS 1996, 1999, 2002

Because consumption is a major determinant of the total amount smokers spend on cigarettes, **Table A.9.2** shows total monthly expenditures for demographic subgroups. Females spent less per month than males, and older smokers spent more per month than younger smokers. Non-Hispanic Whites spent more per month than minorities, but there were few differences by educational status. Because of the unprecedented cigarette price increase in 1999, all groups showed significant increases in the amount spent per month on cigarettes between 1996 and 1999. However, only one group, African Americans, showed even a marginally significant increase in monthly cigarette expenditures between 1999 and 2002.

| Table A.9.2 | | | | |
|--|---------------|---------------|---------------|----------------------------|
| Average Monthly Expenditures (\$2002) on Cigarettes by California Smokers | | | | |
| | 1996 | 1999 | 2002 | Factor Change 1999-2002 |
| | \$ | \$ | \$ | % |
| Overall | 43.77 (∂0.68) | 66.26 (∂1.43) | 65.66 (∂1.60) | -0.9 |
| Gender | | | | |
| Male | 46.66 (∂1.05) | 69.99 (∂2.13) | 68.60 (∂2.36) | -2.0 |
| Female | 39.96 (∂0.83) | 61.19 (∂1.80) | 61.08 (∂2.02) | -0.2 |
| Age | | | | |
| 18-24 | 32.67 (∂1.67) | 50.16 (∂2.93) | 52.26 (∂3.01) | 4.2 |
| 25-44 | 41.77 (∂0.91) | 63.33 (∂2.04) | 61.62 (∂2.37) | -2.7 |
| 45-64 | 52.38 (∂1.38) | 80.92 (∂2.87) | 79.99 (∂3.15) | -1.1 |
| 65+ | 50.11 (∂2.67) | 68.75 (∂4.79) | 69.28 (∂5.42) | 0.7 |
| Race/Ethnicity | | | | |
| African American | 38.74 (∂2.17) | 55.16 (∂4.76) | 63.09 (∂4.95) | 14.4 |
| Asian/PI | 39.15 (∂2.91) | 57.17 (∂4.79) | 52.96 (∂5.61) | -7.4 |
| Hispanic | 26.87 (∂1.58) | 40.70 (∂2.67) | 42.78 (∂3.31) | 5.1 |
| Non-Hispanic White | 50.57 (∂0.81) | 78.02 (∂1.76) | 77.23 (∂2.00) | -1.0 |
| Education (yrs) | | | | |
| <12 | 42.62 (∂2.16) | 60.40 (∂4.97) | 66.50 (∂5.12) | 10.1 |
| 12 | 46.02 (∂1.13) | 73.27 (∂2.52) | 72.24 (∂2.66) | -1.4 |
| 13-15 | 43.04 (∂1.09) | 66.05 (∂2.28) | 62.83 (∂2.50) | -4.9 |
| 16+ | 42.08 (∂1.56) | 60.18 (∂3.30) | 56.40 (∂3.50) | -6.3 |

TABLE ENTRIES ARE DOLLARS (\$2002) PER MONTH AND 95% CONFIDENCE LIMITS.
SOURCE CTS 1996, 1999, 2002

The considerable monthly outlay for cigarettes leads many smokers to worry about how much they spend on cigarettes. As shown in **Table A.9.3**, females expressed more worry than males. In general, the youngest and oldest smokers were less worried than those in the middle groups, and only those with a college education appeared less worried than other educational groups. With the major price increase, there was a sharp increase in the percentage of smokers worried about the price of cigarettes between 1996 and 1999. Although not statistically significant, African Americans appear to be more worried about how much they spend on cigarettes in 2002 than in 1999.

| Table A.9.3 | | | | |
|---|-------------|-------------|-------------|--|
| Percent of Smokers Worried About Money Spent on Cigarettes | | | | |
| | 1996 | 1999 | 2002 | Factor Change 1999-2002 |
| | % | % | % | % |
| Overall | 35.1 (∂1.3) | 52.5 (∂1.9) | 51.7 (∂1.6) | -1.5 |
| Gender | | | | |
| Male | 32.8 (∂1.7) | 50.7 (∂2.5) | 49.3 (∂2.1) | -2.8 |
| Female | 38.2 (∂1.8) | 55.1 (∂2.2) | 55.5 (∂2.6) | 0.7 |
| Age | | | | |
| 18-24 | 32.3 (∂3.6) | 47.9 (∂4.9) | 45.6 (∂3.9) | -4.8 |
| 25-44 | 37.4 (∂1.7) | 53.5 (∂2.6) | 53.3 (∂2.8) | -0.1 |
| 45-64 | 34.1 (∂2.0) | 56.3 (∂3.1) | 55.0 (∂3.2) | -2.3 |
| 65+ | 27.9 (∂4.9) | 42.7 (∂7.0) | 42.1 (∂7.4) | -1.4 |
| Race/Ethnicity | | | | |
| African American | 34.5 (∂4.4) | 46.9 (∂6.3) | 55.2 (∂6.2) | 17.7 |
| Asian/PI | 38.4 (∂8.1) | 52.7 (∂7.3) | 51.7 (∂8.3) | -1.9 |
| Hispanic | 36.9 (∂2.7) | 52.3 (∂4.5) | 48.1 (∂3.8) | -8.0 |
| Non-Hispanic White | 33.8 (∂1.6) | 53.2 (∂2.1) | 52.6 (∂1.8) | -1.1 |
| Education (yrs) | | | | |
| <12 | 41.5 (∂3.7) | 57.8 (∂5.8) | 52.0 (∂4.1) | -10.0 |
| 12 | 36.1 (∂2.7) | 55.1 (∂3.0) | 56.7 (∂2.7) | 2.9 |
| 13-15 | 33.6 (∂2.2) | 50.7 (∂2.9) | 53.7 (∂2.8) | 5.9 |
| 16+ | 25.9 (∂2.9) | 42.1 (∂3.4) | 38.8 (∂3.4) | -7.8 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE CTS 1996, 1999, 2002

2. Support for New Excise Tax Increase in Demographic Subgroups

Table A.9.4 shows the percentages of different demographic groups favoring a further increase in the cigarette excise tax by at least \$0.50/pack. Despite the major price increase in 1998, support did not decline between 1996 and 1999, and increased slightly but significantly between 1999 and 2002. In contrast to earlier years, in 2002 females were more likely to support a tax increase than males, which represented a significant increase from 1999. Support was more prevalent among younger than older Californians. Also, support appeared higher among the Asians/PI and Hispanic groups than among African Americans or Non-Hispanic Whites, and among the higher educated. In general, those with higher incomes indicated higher levels of support, and those with annual household incomes of \$75,000 or more showed a significant increase in support between 1999 and 2002.

| Table A.9.4 | | | | |
|---|-------------|-------------|-------------|-------------------------------|
| Support for a Cigarette Excise Tax Increase of at Least \$0.50/pack. | | | | |
| | 1996 | 1999 | 2002 | Factor Change 1999-2002 |
| | % | % | % | % |
| Overall | 57.1 (∂1.2) | 58.2 (∂1.3) | 60.7 (∂1.1) | 4.3 |
| Gender | | | | |
| Male | 58.0 (∂1.8) | 60.3 (∂1.8) | 59.5 (∂1.5) | -1.3 |
| Female | 56.1 (∂1.5) | 56.0 (∂1.7) | 61.9 (∂1.3) | 10.5 |
| Age | | | | |
| 18-24 | 63.2 (∂2.2) | 65.0 (∂3.0) | 65.7 (∂1.2) | 1.1 |
| 25-44 | 59.5 (∂1.7) | 61.4 (∂1.7) | 64.2 (∂1.6) | 2.8 |
| 45-64 | 54.1 (∂2.0) | 54.7 (∂2.5) | 58.0 (∂1.3) | 6.0 |
| 65+ | 48.6 (∂4.2) | 48.2 (∂3.4) | 50.2 (∂1.8) | 4.1 |
| Race/Ethnicity | | | | |
| African American | 51.3 (∂4.6) | 49.7 (∂4.5) | 54.4 (∂2.6) | 9.5 |
| Asian/PI | 59.4 (∂4.4) | 61.1 (∂5.1) | 65.5 (∂4.2) | 7.2 |
| Hispanic | 58.6 (∂2.8) | 65.9 (∂2.3) | 63.5 (∂1.8) | -3.6 |
| Non-Hispanic White | 57.3 (∂1.3) | 55.3 (∂1.3) | 59.4 (∂1.4) | 7.4 |
| Education | | | | |
| <12 | 51.5 (∂3.3) | 58.4 (∂4.0) | 55.0 (∂3.1) | -5.8 |
| 12 | 51.8 (∂1.9) | 53.2 (∂1.5) | 55.6 (∂2.6) | 4.5 |
| 13-15 | 56.5 (∂2.1) | 56.8 (∂2.0) | 62.2 (∂1.8) | 9.5 |
| 16+ | 66.8 (∂2.0) | 64.2 (∂2.1) | 67.6 (∂1.7) | 5.3 |
| Income | | | | |
| ≤\$10,000 | 51.8 (∂4.9) | 56.0 (∂5.3) | 55.0 (∂4.2) | -1.8 |
| \$10,001-\$20,000 | 52.9 (∂2.8) | 56.7 (∂4.7) | 57.0 (∂3.7) | 0.5 |
| \$20,001-\$30,000 | 52.9 (∂3.2) | 58.0 (∂4.0) | 56.8 (∂3.7) | -2.1 |
| \$30,001-\$50,000 | 56.3 (∂2.4) | 58.1 (∂2.8) | 58.7 (∂2.6) | 1.0 |
| \$50,001-\$75,000 | 62.9 (∂2.6) | 59.7 (∂2.5) | 60.6 (∂2.4) | 1.5 |
| >\$75,000 | 65.9 (∂2.4) | 62.4 (∂2.5) | 68.7 (∂1.8) | 10.1 |
| Unknown | 52.4 (∂3.4) | 51.6 (∂4.2) | 54.7 (∂3.8) | 6.0 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE CTS 1996, 1999, 2002

GLOSSARY

Adolescents

Current smoker – has smoked a cigarette on at least one day in the past month.

Established smoker – has smoked at least 100 cigarettes in his or her lifetime.

Experimenter – has smoked a cigarette (excludes puffers), but has not smoked at least 100 cigarettes in his or her lifetime.

Adults

Current smoker – has smoked at least 100 cigarettes in his or her lifetime and smokes now (old question) or now either everyday or some days (new question) at the time of the survey.

Former smoker – has smoked at least 100 cigarettes in lifetime, but does not smoke now (old question) or now smokes not at all (new question).

Never smoker – has smoked fewer than 100 cigarettes in his or her lifetime.

Non-daily smoker – a *current smoker* who now smokes ‘some days.’

Light daily smoker – a *current smoker* who now smokes ‘everyday’ and reports consuming fewer than 15 cigarettes/day.

Moderate daily smoker – a *current smoker* who now smokes ‘everyday’ and reports consuming 15-24 cigarettes/day.

Heavy daily smoker – a *current smoker* who now smokes ‘everyday’ and reports consuming 25 or more cigarettes/day.

REFERENCES

- Alamar B, Mahmoud L, Glantz SA. *Cigarette Smuggling in California: Fact and Fiction*. San Francisco, CA: University of California, San Francisco, Center for Tobacco Control Research and Education; **2003**.
- Becker GS, Grossman M, Murphy KM. *An Empirical Analysis of Cigarette Addiction*. Cambridge, MA, National Bureau of Economic Research; **1990**.
- California Board of Equalization (CBOE). *Preliminary Estimates of California Cigarette Tax Evasion*. Sacramento, Agency Planning and Research Division; **2002**.
- Centers for Disease Control and Prevention (CDC). *Best Practices for Comprehensive Tobacco Control Programs – August 1999*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office of Smoking and Health; **1999**.
- Chaloupka FJ, Cummings KM, Moreley CP, Horan JK. Tax, price and cigarette smoking: evidence from the tobacco documents and implications for tobacco company marketing strategies. *Tob Control*. **2002**;11(Suppl I):i62-i72.
- Chaloupka FJ, Grossman M. *Price, Tobacco Control Policies and Youth Smoking*. Cambridge, MA, National Bureau of Economic Research; **1996**.
- Emery SL, Gilpin EA, White MM, Pierce JP. How adolescents get their cigarettes: implications for policies on access and price. *J Natl Cancer Inst*. **1999**; 91: 184-186.
- Emery S, White MM, Gilpin EA, Pierce JP. Was there significant tax evasion after the 1999 50-cent/pack tax increase in California? *Tob Control*. **2002**;11:130-134.
- Feighery EC, Ribisl KM, Clark PI, Haladjian HH. How tobacco companies ensure prime placement of their advertising and products in stores: interviews with retailers about tobacco company incentive programmes. *Tob Control*. **2003**;12:184-188.
- Hu TW, Sung H-Y, Keeler TE. Reducing cigarette consumption in California: tobacco taxes vs. an anti-smoking media campaign. *Am J Public Health*. **1995**;85:1218-1222.
- Laugesen M, Scollo M, Sweanor D, Shiffman S, Gitchell J, Barnsley K, Jacobs M, Giovino GA, Glantz SA, Daynard RA, Connolly GN, Difranza JR. World's best practice in tobacco control. *Tob Control*. **2000**;9:228-229.

- Lewit EM, Coate D, Grossman M. The effects of government regulations on teenage smoking. *J Law Econ.* **1981**;24: 545-569.
- Lewit EM, Hyland A, Kerrebrock N, Cummings KM. Price, public policy, and smoking in young people. *Tob Control.* **1997**;(Suppl 2): S17-24.
- Meier B. Cigarette maker raises prices 45 cents a pack. *New York Times*; **1998**.
- National Cancer Institute (NCI). *The Impact of Cigarette Excise Taxes on Smoking Among Children and Adults: Summary Report of a National Cancer Institute Expert Panel*. Bethesda, MD: National Cancer Institute, Division of Cancer Prevention and Control, Cancer Control Science Program; **1993**.
- O'Donoghue T, Rabin M. The economics of immediate gratification. *J Behav Decision Making.* **2000**;13: 233-250.
- Orzechowski W, Walker RC. *The Tax Burden on Tobacco. Historical Compilation*. Volume 38. Arlington, VA: Ozechowski & Walker; **2003**.
- Shapiro E. Price cut on Marlboro upsets rosy notions about tobacco profits. *Wall Street Journal*: A1, A10; April 5, **1993**.
- Thaler RH, Shefrin HM. An economic theory of self-control. *J Political Econ.* **1981**;89(2): 392-406.
- U.S. Department of Health and Human Services (USDHHS). *Reducing the Health Consequences of Smoking: 25 Years of Progress. A Report of the Surgeon General*. Atlanta, GA, U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health. DHHS Publication No. (CDC) 89-8411; **1989**.
- U.S. Federal Trade Commission (USTC). Federal Trade Commission Report to Congress for 2001. Pursuant to the Federal Cigarette Labeling and Advertising Act. Washington DC: Federal Trade Commission; **2003**.
- Wasserman J, Manning WG, Newhouse JP, Winkler JD. The effects of excise taxes and regulations on cigarette smoking. *J Health Econ.* **1991**;10:43-641.

TOBACCO CONTROL SUCCESSES IN CALIFORNIA:
A FOCUS ON YOUNG PEOPLE

Chapter 10

Media Influences on Smoking

| | |
|--|--------------|
| KEY FINDINGS | 10-2 |
| Introduction..... | 10-3 |
| 1. Recall of Anti-tobacco Media | 10-4 |
| 2. Cigarette Advertising | 10-6 |
| Favorite Ads of Adults and Adolescents..... | 10-6 |
| Ads in Small Stores Seen by Adolescents | 10-8 |
| 3. Cigarette Promotional Items | 10-9 |
| Possession and Willingness to Use Promotional Items | 10-10 |
| Adolescent Interest in Promotional Items in 2002 | 10-12 |
| How Adolescents Obtained Promotional Items | 10-13 |
| Adolescents Who Saw Promotional Item Catalogs and Offers | 10-13 |
| 4. Tobacco Company Sponsorships | 10-15 |
| Tobacco Logos at Sports Events Seen on Television..... | 10-15 |
| Tobacco Brand Name Event Sponsorships | 10-16 |
| 5. Summary | 10-17 |
| APPENDIX | 10-19 |
| 1. Exposure to Anti-Tobacco Media | 10-19 |
| 2. Favorite Cigarette Advertisement..... | 10-22 |
| 3. Cigarette Promotional Items | 10-24 |
| 4. Exposure to Cigarette Logos on Televised Sporting Events..... | 10-27 |
| GLOSSARY | 10-28 |
| REFERENCES | 10-29 |

Chapter

10

KEY FINDINGS

Media Influences on Smoking

Anti-smoking Media

- 1) **Televised anti-smoking messages reached saturation levels by 1999.** In 2002, close to 90% of adolescents and young adults recalled seeing these ads at least “a few times” in the last month.
- 2) **In 2002, significantly more older adolescents and young adults had seen “a lot” of televised anti-smoking media in the last month** (42.0% and 37.9%, respectively) compared to 1999 (29.1% and 29.9%, respectively).

Tobacco Industry Marketing Activities

- 3) **Despite MSA prohibitions on marketing of promotional products, nearly 70% of adolescents saw tobacco promotional product catalogs in small neighborhood stores in 2002**, an increase from 1999 levels by a factor of 8%.
- 4) **The percentage of 12- to 14-year-olds who saw tobacco logos on televised sports events at least a few times increased significantly between 1999 and 2002** (40.5% to 45.6%, a 12.5% factor increase). Fewer adults and adolescents saw tobacco logos in 1999 than in 1996, and adults showed further significant declines between 1999 and 2002.
- 5) **The popularity of Camel brand advertising has diminished following the removal of Joe Camel.** In 1996, 35.4% of 12- to 14-year-olds favored Camel, compared to 23.0% in 1999, and only 14.7% in 2002, a decline between 1996 and 2002 of 58%.
- 6) **More than half of Californians did not name a favorite cigarette advertisement in 2002**, a significant increase from 1999. In 2002, these percentages were 65.2% for young adolescents (12-14 years), 53.4% for older adolescents (15-17 years), 54.8% for young adults (18-24 years), 59.0% for adults 25 to 40 years old, and 66.3% for adults more than 40 years old.
- 7) **Significantly fewer adolescents obtained tobacco brand promotional items in 2002**, compared to the peak in 1996, from 8.1% to 6.2% for 12- to 14-year-olds and from 9.8% to 7.5% for 15- to 17-year-olds, a decline by factors of 46% and 52%, respectively.

Media Influences on Smoking

Introduction

Anti-tobacco media and tobacco industry advertising and promotions seek to influence the population with opposing messages. Anti-tobacco advertising aims to point out the dangers of tobacco use and secondhand smoke and expose the duplicity of the tobacco industry in order to prevent adolescents from starting to smoke and to encourage smokers to quit. Although for many years the tobacco industry insisted that its advertising and promotional activities were to maintain and grow brand market share within the existing pool of smokers, internal industry documents uncovered during litigation surrounding numerous lawsuits against the tobacco industry indicate that its marketing activities both aimed to keep smokers smoking and to encourage smoking initiation in youth (Hurt & Tobertson, 1998; Wilkenfeld et al., 2000; Perry, 1999; Cummings et al., 2002).

The marketing of so-called “light” brands of cigarettes to health conscious smokers may have kept them smoking longer (NCI, 2001). While such brands were machine tested to deliver lower levels of tar and nicotine, smokers could alter their smoking behavior in order to maintain nicotine levels and in the process were exposed to toxic substances at levels similar to what would occur with regular brands (NCI, 2001). During the 1990s, evidence accumulated that many tobacco industry advertising and promotional activities were attractive to children and adolescents and effective in encouraging adolescents to begin the smoking uptake process. The appeal of R. J. Reynolds’ cartoon character, Joe Camel (Fisher et al., 1991; DiFranza, et al., 1991; Pierce et al., 1991), and of tobacco promotional items (Evans et al., 1995; Unger et al., 2001) is well documented, and longitudinal data link receptivity to cigarette advertising and promotions to future smoking (Pierce et al., 1998; Biener & Siegel, 2000; Sargent et al., 2000).

This research, together with the tobacco industry documents, led to some local ordinances restricting tobacco advertising in California. It also led to the Master Settlement Agreement (MSA) in which the tobacco industry agreed to a settlement with Attorneys General from 46 states that had initiated lawsuits to recover smoking-related health care costs. Effective beginning in late 1998, the MSA also placed some restrictions on tobacco marketing practices: 1) cigarette advertising, resulting in the removal of the cartoon character Joe Camel, 2) distribution of tobacco promotional items to minors, and 3) industry sponsorship of sports and other events.

An extensive mass media campaign has been a key element of the California Tobacco Control Program’s anti-tobacco efforts from its beginning in 1990. However, in fiscal years 1994-1995 and 1995-1996, funding for the California Tobacco Control Program was reduced to 50% of the level specified by Proposition 99 (TEROC, 1997). In addition, two of its anti-smoking television ads that exposed tobacco industry tactics were kept off the

air. In 1997, funding levels were returned to full allocation levels, and the program developed a new campaign of anti-tobacco ads (TEROC, 1997). However, between 1997 and 1999, the budget for the media campaign decreased slightly and the program introduced only one new anti-tobacco advertisement. Then, with MSA funds, California was able to more than double the amount spent on anti-tobacco media in fiscal years 2000-2001 and 2001-2002. However, because of the state's budget crisis, the MSA funds were no longer available beginning in fiscal year 2002-2003.

Provisions of the MSA led to the establishment of the American Legacy Foundation, which launched an unprecedented nationwide anti-tobacco media campaign. This campaign, called "Truth," like California's campaign emphasized the deceptions in the tobacco industry's public statements and marketing. The "Truth" campaign was launched in early 2000. Thus, through 1999, the main source of Californians' exposure to anti-smoking media remained the California Tobacco Control Program's campaign.

This chapter looks at changes in recall of anti-tobacco media and changes in receptivity to tobacco advertising and promotions from 1996 to 2002, a period that spans the implementation of the MSA. Section 1 of this chapter reports on changes in Californians' recall of anti-tobacco media in recent years. In 2002, such recall stems from both California's anti-tobacco media and the nationwide "Truth" campaign. Also, several large California cities (Los Angeles, San Francisco, and San Diego) placed restrictions on tobacco advertising at stadium sports events in 1994 and cigarette billboard advertising beginning in early 1998. Thus, it will not be possible to separate recall of California's efforts and the effects of the MSA in the remaining sections of the chapter. Section 2 of this chapter analyzes trends in Californians' favorite cigarette advertisements. Section 3 examines trends in adolescents' and adults' receptivity to tobacco promotional items. Section 4 shows California youth's exposure to tobacco logos at sports events on television. Section 5 provides a summary of the chapter.

1. Recall of Anti-tobacco Media

In 1996, 1999, and 2002, the California Tobacco Surveys included the following questions to assess recall of anti-tobacco media messages:

In the last month, have you seen anything on TV against smoking?

In the last month, have you heard anything on the radio against smoking?

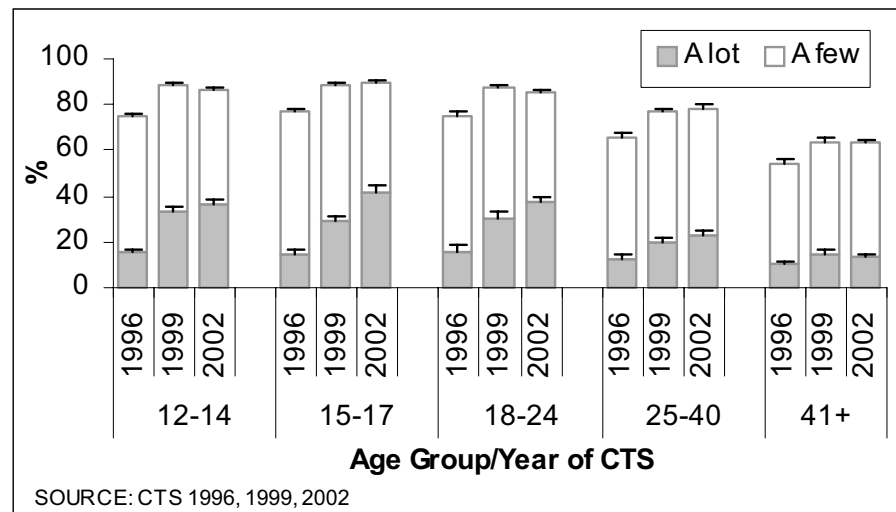
In the last month, have you seen a billboard with a message against smoking?

Would you say you saw/heard a lot of, a few, or no commercials against smoking?

In 2002, over 90% of older adolescents and young adults saw at least a few anti-tobacco messages on TV in the last month.

Figure 10.1 shows that in 1999, significantly more California adolescents recalled anti-tobacco messages on television in the last month compared to 1996. There was also a significant increase in the percentage of older adolescents and young adults who reported that they saw “a lot” (shaded portion of bar) of anti-smoking messages on television in the last month between 1999 and 2002.

Figure 10.1: Adolescents, Young Adults, and Older Adults Seeing Anti-Smoking Ads on TV in Last Month. Data plotted are presented in Appendix Table A.10.1.



The increase in expenditures for California’s media campaign in fiscal years 2000-2001 and 2001-2002 and a heightened emphasis on advertisements criticizing the tobacco industry both in California’s and via the national campaigns (e.g., “Truth”), were likely responsible for the increased recall of televised advertisements against smoking. Both the state of California and the American Legacy Foundation face litigation initiated by the tobacco industry over the slant of the recent anti-tobacco media campaigns. The tobacco industry maintains that the ads should be limited to educating the public about the health dangers of smoking, but many of the current ads also aim to educate the public regarding the past and present deceptions and manipulations of the tobacco industry. Nationally, the American Legacy Foundation “Truth” campaign has been successful in changing population attitudes about the tobacco industry (Farrelly et al., 2002).

Appendix Table A10.1 shows the data plotted in Figure 10.1 for adolescents, young adults, and older adults, and Appendix Table A.10.2 presents detailed breakouts of recall of anti-tobacco media by demographic group and smoking status.

2. Cigarette Advertising

Favorite Ads of Adults and Adolescents

Evidence suggests that developing a positive attitude toward an advertisement, or liking the ad, is a precursor to trying the product (MacKenzie et al., 1986). Research has also shown that having a favorite cigarette ad significantly increases the probability that a committed never smoker will eventually progress toward smoking (Pierce et al., 1998).

The 1992, 1993, 1996, 1999, and 2002 adolescent CTS and the 1992, 1996, 1999, and 2002 adult CTS asked the following question:

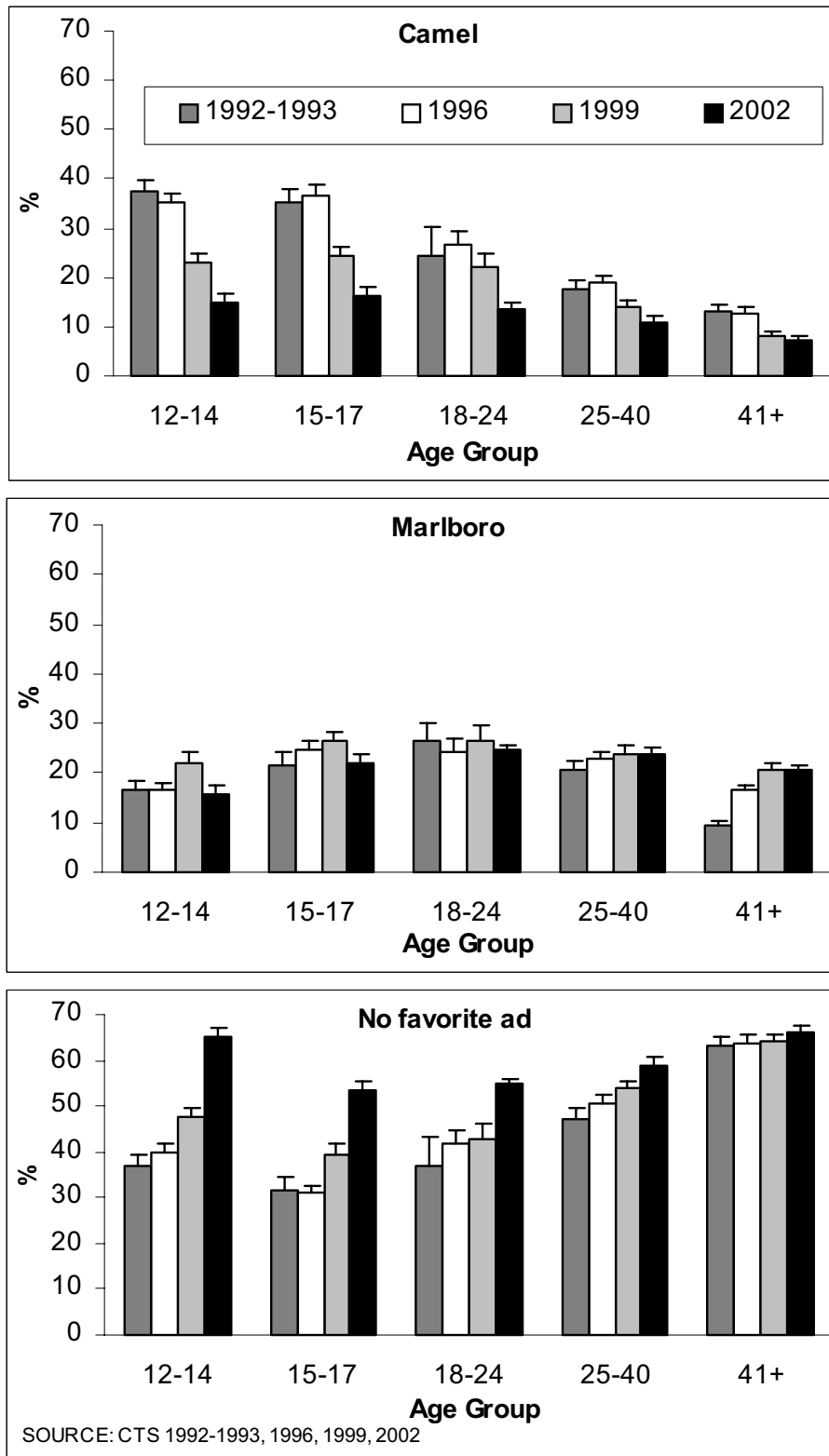
What is the name of the cigarette brand of your favorite advertisement?

Respondents could provide the name of any brand to answer this question, but Marlboro and Camel accounted for the overwhelming majority of brands named (by approximately 90% of adults and adolescents who named a brand in each survey year). Thus, only results for Marlboro, Camel, and having no favorite ad are reported.

Figure 10.2 shows the brand of the favorite ad nominated by respondents in the 1992/1993, 1996, 1999, and 2002 CTS by age group (top panel-Camel, middle panel-Marlboro, bottom panel-no favorite advertisement).

The removal of Joe Camel by the MSA in 1998 led to a plummeting in the popularity of Camel brand advertisements between 1996 and 1999, particularly among adolescents. The percentage of adolescents aged 12 to 14 years who favored Camel declined between 1996 and 2002 by a factor of 58%. Older age groups showed a similar pattern, but fewer adults named Camel as the brand of their favorite advertisement. Adults, especially young adults, tended to favor Marlboro advertisements.

Figure 10.2: Favorite Cigarette Advertisement for Adolescents, Young Adults, and Older Adults. Data plotted are presented in Appendix Table A.10.3.



From 1996 to 1999, most groups, but 12- to 14-year-olds significantly, appeared to have shifted their attention away from Camel to Marlboro. While Marlboro initially picked up some of the loss of Camel's popularity — possibly because their successful Marlboro Miles marketing campaign peaked right about the time of the MSA — the decline in Marlboro popularity by 2002 represented a return to pre-MSA levels.

In 1999, significantly more adolescents did not name a favorite ad compared to 1996. In 2002, the percentage who did not name a favorite advertisement increased significantly from 1999 levels in each age group, except the oldest (already at a high level) as follows: by a factor of 37% for young adolescents, by a factor of 35% for older adolescents, by a factor of 28% for young adults, and by a factor of 10% for adults 25 to 40 years old.

That fewer people named a brand of a favorite cigarette advertisement in 2002 compared to 1999 may be due to the anti-industry slant to many of the recent anti-tobacco media messages both from California's media campaign and from the American Legacy Foundation's "Truth" campaign. Another possible explanation is that removal of tobacco advertising from billboards has resulted in less advertising overall, despite continued advertising in magazines (King et al., 1998; Hamilton et al., 2002), so that people were less brand aware.

The data plotted in Figure 10.2 are given in Appendix Table A.10.3, and Appendix Table A.10.4 presents adolescents' responses to the favorite ad question by demographics and smoking status. Trends for adolescent committed never smokers and susceptible never smokers mirrored the overall adolescent trends.

Ads in Small Stores Seen by Adolescents

The MSA did not restrict point-of-sale advertising, and recall of such advertising remained at high levels (around 80%) among adolescents.

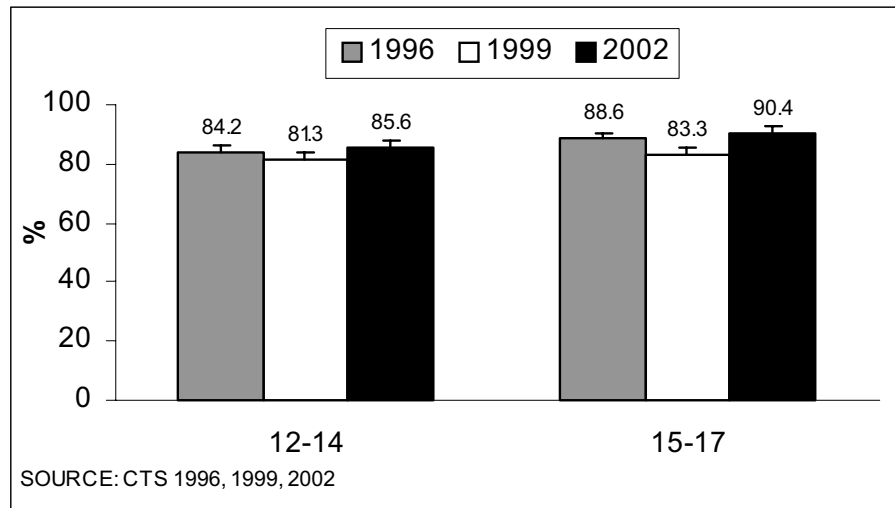
The dramatic drop in Camel's popularity is almost certainly a direct effect of the MSA banning of cartoon characters in tobacco advertising. However, to lend credence to this assertion and to findings presented later in this chapter, it is instructive to track trends in a type of advertising that the MSA left alone. The MSA includes no provisions regulating or prohibiting self-service displays of tobacco products or point-of-sale advertising (Tobacco Control Resource Center, 1999). To assess adolescents' exposure to tobacco advertising at small stores in their neighborhoods, the 1996, 1999, and 2002 CTS asked the following question:

In the last 12 months, when you visited a small store near where you live, how often have you seen advertisements for brands of cigarettes or chewing tobacco?

Would you say often, sometimes, or never?

Figure 10.3 presents the percentage of adolescents who reported seeing advertisements in the last year at least sometimes, for brands of cigarettes or chewing tobacco in small stores near where they lived.

Figure 10.3: Adolescents Who Saw Tobacco Advertisements in Small Stores



In each survey year, at least 80% of both younger and older adolescents reported seeing such ads. Rates for older adolescents were slightly higher than those for the younger group in each year. There were no significant differences in exposure over time. As the MSA did not restrict this type of advertising, change in exposure levels were not expected and not observed. Thus, the changes documented in this chapter that relate to the types of advertising and promotions restricted by the MSA are very likely the results of such restrictions and not some underlying declining secular trend.

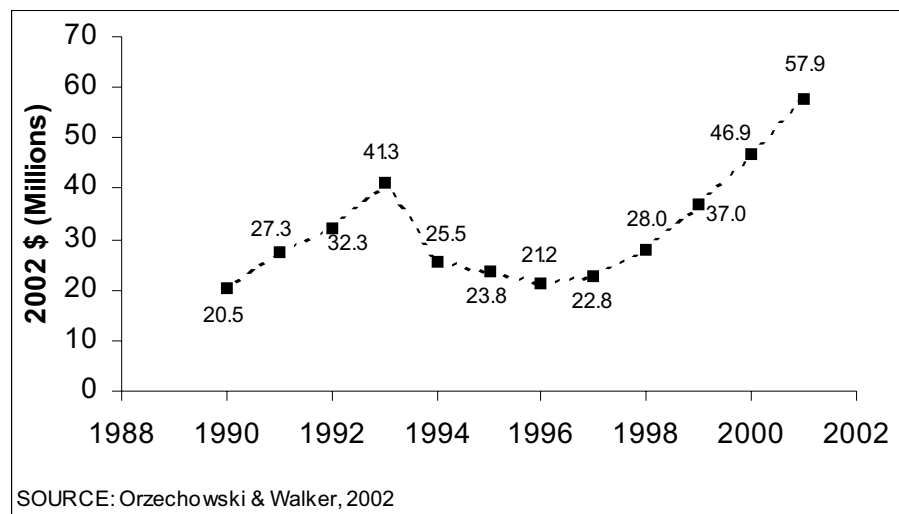
3. Cigarette Promotional Items

Consumer behavior theory indicates that promotional items are important incentives that help maximize the probability that a potential consumer will purchase a given brand (Ray, 1982). Thus, willingness to use such an item strongly indicates a positive feeling toward, and identification with, the brand. Tobacco promotional items include tee shirts, baseball caps, duffel bags, key chains, or bottle openers displaying cigarette brand logos. Also included is other “gear” such as leather jackets or other apparel, which are sometimes less obviously branded, and available only through cigarette brand merchandise catalogs using coupon exchange. Such items are attractive to young people and increase the likelihood of progression to smoking (Evans et al., 1995; Pierce et al., 1998).

Figure 10.4 shows the increase in expenditures for this type of marketing from 1990 to 2001, consumer-price-index adjusted to 2002 \$ (Orzechowski & Walker, 2002). Between

1990 and 1993, the amount of money for such expenditures doubled, but then declined again by 1996. Cigarette price (see Chapter 9) also increased until 1993, before the industry cut prices on premium brands. Perhaps during the period after the price cut, either the industry could not afford to spend so much on promotions or felt that the price cut itself was sufficient to stimulate smoking. Thereafter, and despite the provisions of the MSA, expenditures for promotional items increased markedly every year through 2001, the latest year for which data are available. In 2001, the amount of money spent on promotions was higher by a factor of 173% compared to 1996, and accounted for 50.9% of the entire tobacco industry budget of \$11.2 billion for advertising and promotions.

Figure 10.4: Tobacco Industry Expenditures for Promotional Items, 2002 \$



Possession and Willingness to Use Promotional Items

Effective July 1999, the MSA banned all marketing, distributing, offering, or selling of apparel or merchandise bearing a tobacco product brand name, including catalogs and direct mail strategies (Tobacco Control Resource Center, 1999). However, as the figure above shows, this did not decrease the amount of money spent on such promotions.

To assess ownership and willingness to use cigarette brand promotional items, the 1996, 1999, and 2002 CTS asked the following questions:

Some tobacco companies offer promotional items identified with their brands, such as clothing and bags, that the public can buy or receive for free. In the past 12 months have you . . .

Exchanged coupons for an item with a tobacco brand name or logo on it?

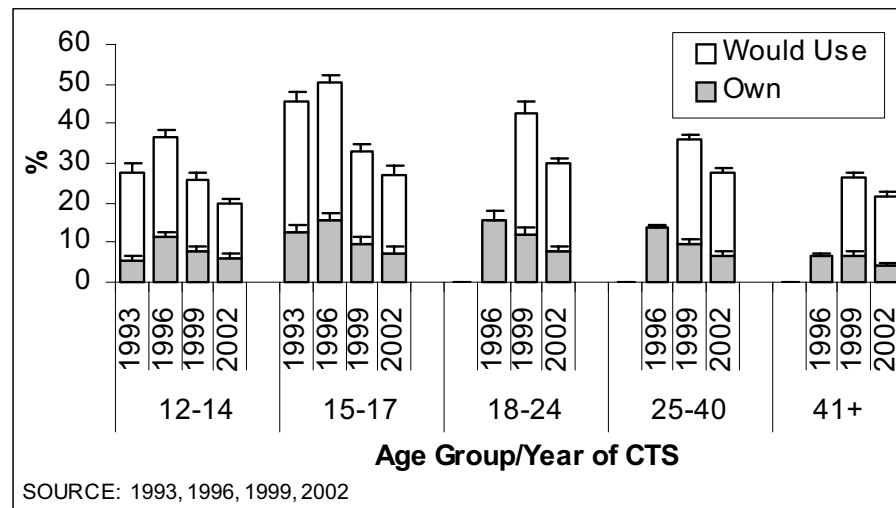
Received as a gift or for free, any item with a tobacco brand name or logo on it?

Purchased any item with a tobacco brand name or logo on it?

Do you think you would ever use a tobacco industry promotional item such as a t-shirt?

The question regarding willingness to use a tobacco promotional item was only asked of adults beginning in 1999. **Figure 10.5** shows the percentages of adolescents, young adults, and older adults who have (shaded portion of the bars) or would be willing to use (open portion of bars) a tobacco promotional item.

Figure 10.5: Adolescents, Young Adults, and Older Adults Willing to Use a Tobacco Promotional Item. Data plotted are presented in Appendix Table A.10.5.



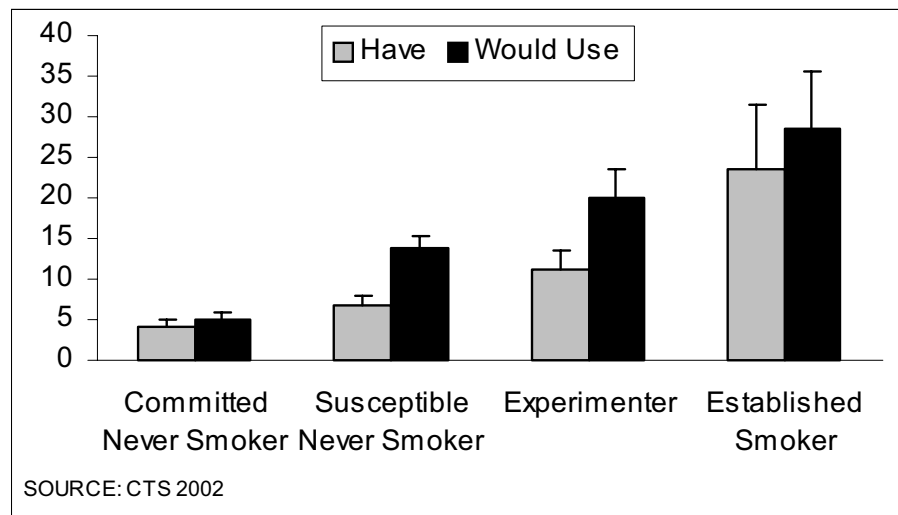
The percentage of adolescents who obtained tobacco promotional items in the last year peaked in 1996, declined significantly in 1999, and further declined significantly in 2002. Between 1999 and 2002, obtaining a promotional item in the last year decreased from 8.1 \pm 1.1% to 6.2 \pm 1.0% for adolescents aged 12 to 14 years, and from 9.8 \pm 1.3% to 7.5 \pm 1.3% for adolescents aged 15 to 17 years, a decline of factors of 46% and 52%, respectively, since the peak in 1996. However, the further decline among adolescents between 1999 and 2002 was not as large as it was for young adults. Rates for young adults decreased by a factor of 34% from 1996 to 1999 and by a factor of 36% from 1999 to 2002. Having or being willing to use an item (total height of bar) showed similar trends, and the decline between 1999 and 2002 was significant for all age groups.

Appendix Table A.10.5 gives the data plotted in the above figure and Appendix Tables A.10.6 and A.10.7 give the demographic breakout of adolescents who have or are willing to use tobacco promotional items.

Adolescent Interest in Promotional Items in 2002

In 2002, fewer adolescents (age 12 to 17 years) were willing to use a tobacco brand promotional item compared to 1999—a decrease by a factor of 29.6%. The patterns in the percentages of adolescents who had a promotional item and who were willing to use one were very similar between 1999 and 2002. Therefore, **Figure 10.6** uses only 2002 data to illustrate the relationship between having a promotional item, being willing to use a promotional item, and smoking experience among adolescents.

Figure 10.6: Adolescent Interest in Promotional Items 2002



| | Have | Would Use |
|--------------------------|------|-----------|
| Committed never smoker | 4.1 | 5.0 |
| Susceptible never smoker | 6.8 | 13.7 |
| Experimenter | 11.3 | 20.1 |
| Established smoker | 23.5 | 28.6 |

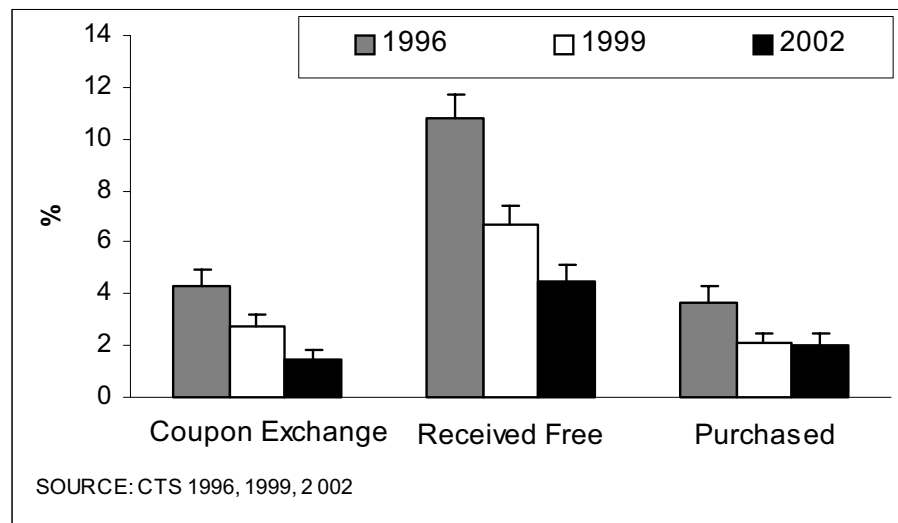
In the early stages of the smoking uptake process, more adolescents are willing to use a tobacco promotional item than had actually obtained one.

Significantly fewer committed never smokers reported obtaining or being willing to use an item, compared to susceptible never smokers. In turn, significantly fewer susceptible never smokers than experimenters obtained or were willing to use a tobacco branded item. Significantly fewer experimenters than established smokers obtained a tobacco promotional item. Figure 10.6 also suggests that an unsatisfied demand for tobacco brand promotional items exists among susceptible never smokers and experimenters: significantly more susceptible never smokers and experimenters were willing to use an item than had actually obtained one.

How Adolescents Obtained Promotional Items

Figure 10.7 shows the source of the recently obtained tobacco items for each survey year. As the results presented earlier in this section indicate, compared to 1996, in 1999 fewer adolescents received promotional items from any source. Further, between 1999 and 2002, the percentage of adolescents who received a promotional item in exchange for coupons decreased by a factor of 44%, whereas the percentage who received a free gift of a promotional item decreased by a factor of 33%. Approximately the same percentage of adolescents purchased such items in 2002 as in 1999.

Figure 10.7: How Adolescents Obtained Promotional Items



| | Coupon Exchange | Received Free | Purchased |
|------|-----------------|---------------|-----------|
| 1996 | 4.3 | 10.8 | 3.7 |
| 1999 | 2.7 | 6.7 | 2.1 |
| 2002 | 1.5 | 4.5 | 2.0 |

Overall, in 2002, while most adolescents received these items as gifts (4.5 \pm 0.6%), some still reported obtaining them by coupon exchange (1.5 \pm 0.3%) or by purchase (2.0 \pm 0.5%). Some of these “gifts” may be from family or friends, but the terms of the MSA should have eliminated coupon exchange and purchase by underage adolescents. To be in compliance with the terms of the MSA, improved procedures for age verification are required.

Adolescents Who Saw Promotional Item Catalogs and Offers

The 1996, 1999, and 2002 CTS asked adolescents the following questions on their recall of promotional item marketing in small neighborhood stores:

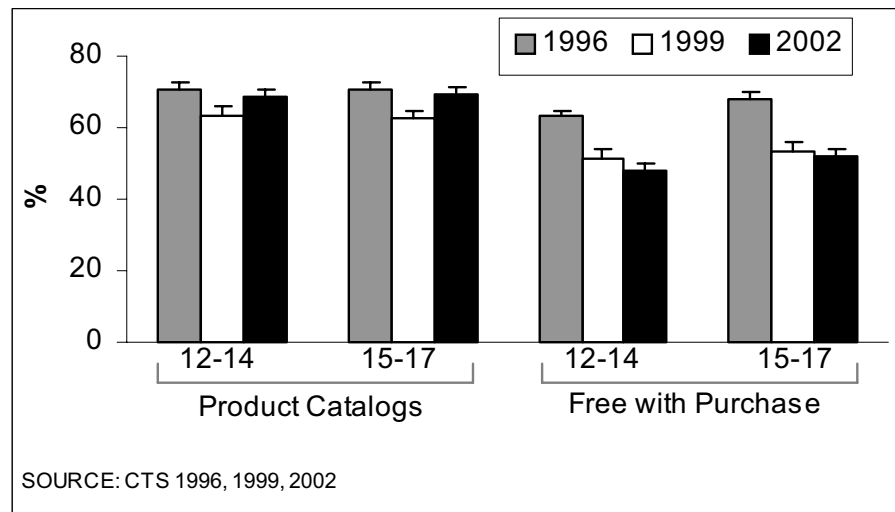
In the last 12 months, when you visited a small store near where you live, how often have you seen

Catalogs for cigarette promotional products?

Free promotional product offers with a cigarette purchase?

Figure 10.8 presents the percentage of adolescents who saw catalogs and free promotional product offers with purchase in the last year at least sometimes in small stores near where they lived.

Figure 10.8: Adolescents Who Saw Promotional Items Advertised in Small Stores



| | Age | 1996 | 1999 | 2002 |
|--------------------|-------|------|------|------|
| Product Catalogs | 12-14 | 70.8 | 63.6 | 68.7 |
| | 15-17 | 70.9 | 63.0 | 69.2 |
| Free with Purchase | 12-14 | 63.4 | 51.6 | 48.1 |
| | 15-17 | 68.0 | 53.5 | 52.3 |

Percentages of adolescents who saw catalogs in small stores in 1996 (~70%) declined significantly by 1999, but returned close to 1996 levels in 2002. Percentages of those who saw offers for free promotional products with cigarette purchase also declined significantly from 1996 to 1999, but stayed constant from 1999 to 2002. Older adolescents were more likely to report seeing such free product offers in 1996, but subsequent survey years showed little difference by age group.

The current generation of tobacco promotional items is prohibited from bearing brand logos, but other strategies can make the product easily identifiable with the brand. Clearly this marketing strategy is still a major emphasis of the tobacco industry, and adolescents are very aware of such offers.

4. Tobacco Company Sponsorships

Tobacco Logos at Sports Events Seen on Television

Since 1996, several large cities and other municipalities in California have banned tobacco advertising at local sporting events. These ordinances reduced the exposure of the home-game audience and the television audience to this form of tobacco advertising. In addition, the MSA specifically limited tobacco companies to sponsoring one sporting or cultural event per brand in the US each year. The MSA did not limit sponsorship of events outside the US. With global satellite coverage of nearly every major (and many minor) sporting and entertainment events, it was unclear whether the MSA provisions would further limit exposure to this type of advertising.

The CTS cannot separate the specific effects of local ordinances banning tobacco advertising at sporting events versus the MSA restrictions, but the surveys do provide evidence about changes over time in Californians' exposure to tobacco advertising on televised sporting events.

The 1996, 1999, and 2002 CTS asked all adults and adolescents the following question:

In the last year, how often have you seen a sports event on television in which you saw a logo of a tobacco product?

Would you say very often, a few times, rarely, or not at all?

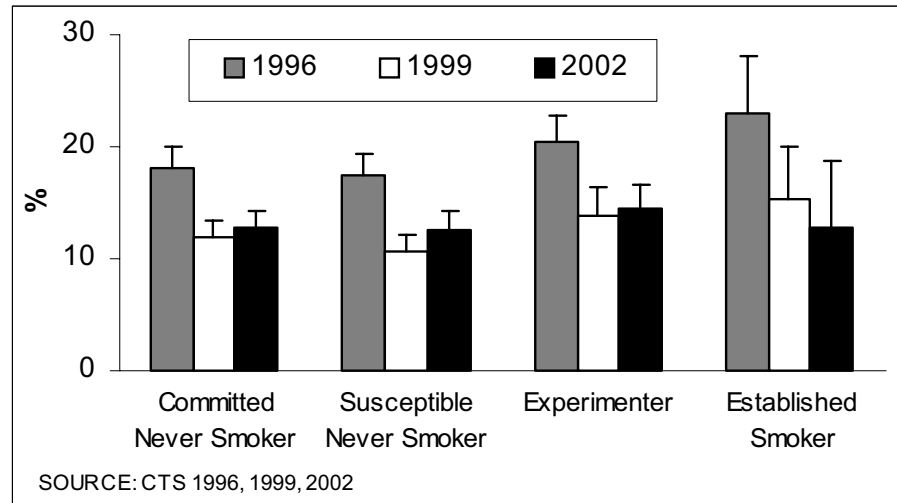
Between 1999 and 2002, exposure to tobacco logos on televised sporting events increased by a factor of 12.5% among 12- to 14-year-olds.

The percentages of adults and adolescents who saw tobacco logos at sports events on television at least a few times showed significant declines between 1996 and 1999, and adults showed further significant declines between 1999 and 2002. However, a significantly higher percentage of 12- to 14-year-olds (by a factor of 12.5%) reported seeing tobacco logos at least a few times in 2002 (45.6 \pm 1.7%) than reported seeing them in 1999 (40.5 \pm 2.2%). For older adolescents, these percentages were not significantly higher. A full breakout by demographic characteristics for adolescents, including age, is given in Appendix Table A.10.8 for seeing these events very often.

Figure 10.9 shows that among adolescents in each category of smoking experience, the percentage who replied that they saw a logo on a televised sports event "very often" in the past year did not decrease between 1999 and 2002 as it had between 1996 and 1999. The percentages were essentially unchanged in 2002 compared to 1999.

While these data suggest that local ordinances, along with MSA provisions pertaining to event sponsorship, resulted in decreased exposure to tobacco industry advertising on television, the allowed one sporting event/year for each company and/or foreign sporting events appear sufficient to still reach a significant percentage of the adolescent population.

Figure 10.9: Adolescents Who Reported Seeing a Tobacco Brand Logo Very Often on Televised Sports Events in the Last Year



| | 1996 | 1999 | 2002 |
|--------------------------|------|------|------|
| Committed Never Smoker | 18.1 | 11.9 | 12.7 |
| Susceptible Never Smoker | 17.4 | 10.7 | 12.6 |
| Experimenter | 20.4 | 13.8 | 14.4 |
| Established Smoker | 23.0 | 15.3 | 12.8 |

Tobacco Brand Name Event Sponsorships

A brand name sponsorship is an athletic, musical, artistic, or other social or cultural event for which payment is made to include the brand name as either the name of the event, or to identify, advertise, or promote the event, or an entrant, participant, or team in the event (Tobacco Control Resource Center, 1999). The Winston Cup NASCAR racing series is one example, but sponsorships can also include local cultural festivals that pay or accept something of value and are then promoted in conjunction with a tobacco brand name. However, events held in adult-only facilities are excluded from this definition. Thus, “Camel Nights” at a bar would not be considered a brand name sponsorship.

The MSA addresses four types of brand name sponsorships: concerts, events in which the intended audience comprises a significant percentage of youth, events in which any paid participants or contestants are youth, or any athletic event between opposing teams in any football, basketball, baseball, soccer, or hockey league.

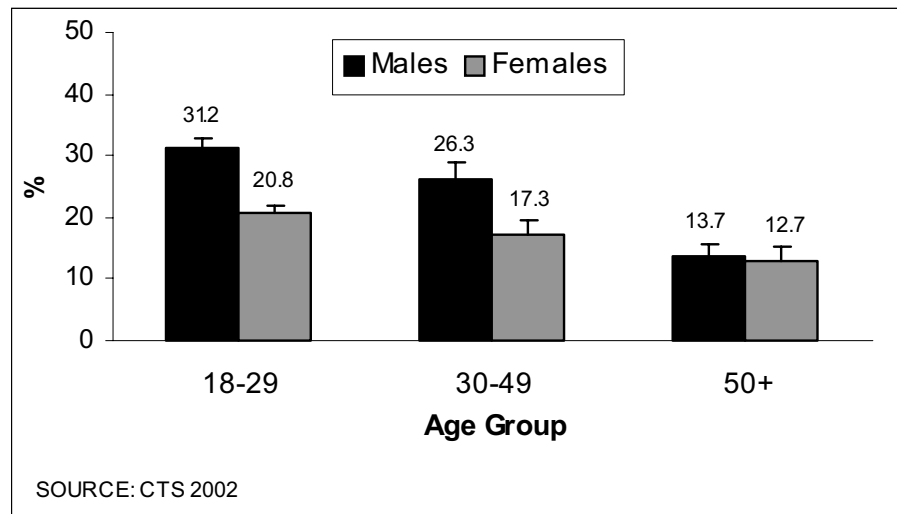
The MSA limits tobacco company sponsorship of such events to one per year, except for contracts that were in effect before August 1, 1998 (Tobacco Control Resource Center, 1999).

The 2002 CTS asked adults the following question:

In the last year, how often have you attended an event sponsored entirely or in part by a tobacco company?

Figure 10.10 shows that approximately a third (31.2±1.6%) of young adult males attended an event sponsored by a tobacco company in 2002. Younger adults aged 18 to 29 years were more likely than older adults to have attended. Except for those 50 years or older, males were significantly more likely than females to have attended such events. Since there are few restrictions pertaining to adults-only events sponsored by tobacco companies, it will be important to monitor their popularity in the future, especially among young adults.

Figure 10.10: Adults Who Attended an Event Sponsored by a Tobacco Company in the Last Year



5. Summary

The increase in Californians' recall of televised advertisements against smoking in the past month is encouraging. In 2002, close to 90% of adolescents and young adults recalled seeing such advertisements in the previous month. The survey questions could not determine whether this media was from the California Tobacco Control Program, from the American Legacy's "Truth" campaign, or from other sources.

Between 1996 and 2002, Californians' exposure to tobacco advertising and promotions decreased. Several measures indicated that Californians—and adolescents in particular—were less receptive to tobacco industry advertising and promotional activities in 2002 than in 1999 and 1996. The popularity of Camel brand advertising has diminished considerably since the MSA mandated the removal of the cartoon character, Joe Camel.

While Marlboro picked up popularity in 1999, by 2002 the percentage of the population who named this brand as that of their favorite ad declined again to pre-MSA levels. The percentage of the California population who did not name a brand of a favorite cigarette advertisement increased substantially between 1999 and 2002. This increase is encouraging and particularly notable among adolescents.

Willingness to use a tobacco promotional item declined significantly between 1996 and 1999, and significantly again between 1999 and 2002 in all age groups of Californians. Further, significantly fewer adults and adolescents obtained tobacco brand promotional items in 2002 compared to 1996 or 1999. The decline in obtaining items between 1999 and 2002 was significant for adults but only marginally significant for adolescents. In 2002, significantly higher percentages of adolescent susceptible never smokers and experimenters were willing to use such an item, compared to the percentage actually having them, suggesting unmet demand among these adolescent never smokers. In 2002, 4.1% of adolescent committed never smokers and 6.8% of susceptible never smokers had obtained a tobacco promotional item, indicating that the provisions of the MSA were not strict enough or enforced strongly enough to completely eliminate this influence on adolescents to smoke.

While receptivity to tobacco promotional items and recall of tobacco logos on televised sports events has declined since the MSA, it still occurs. After a decline between 1996 and 1999, adults showed further significant declines between 1999 and 2002. However, among adolescents, the decline between 1996 and 1999 did not continue through 2002. In fact, a significantly higher percentage of young adolescents reported seeing tobacco logos at sport events on television at least a few times in 2002 than reported seeing them in 1999. Perhaps the allowed single sponsorship of a televised domestic sports event per year for each company signing the MSA, together with unregulated international televised sports events and other exceptions are sufficient to reach some adolescents. Alternatively, cigarette companies may be violating the terms of the MSA. Watchdog groups need to assess tobacco industry compliance with the MSA, and if they uncover violations, steps to enforce its provisions need to be increased.

Chapter 10

APPENDIX Media Influences on Smoking

This appendix presents supporting tabular data for demographic and anti- and pro-tobacco media recall variables for the material covered in the main body of the chapter. The tables relevant to each section are shown under the corresponding chapter section and subsection heading.

1. Exposure to Anti-Tobacco Media

Table A.10.1 displays the data plotted in Figure 10.1 for adolescents, young adults, and older adults.

| Table A.10.1 Percentages Seeing Anti-Smoking Ads on TV in Last Month | | | | | | |
|---|-------------|-------------|-------------|-------------|-------------|-------------|
| Age | 1996 | | 1999 | | 2002 | |
| | A lot % | A few % | A lot % | A few % | A lot % | A few % |
| 12-14 | 15.3 (±1.4) | 59.4 (±1.8) | 33.1 (±2.0) | 55.4 (±1.5) | 36.2 (±2.5) | 50.1 (±1.5) |
| 15-17 | 15.1 (±1.4) | 61.7 (±1.5) | 29.1 (±1.8) | 59.5 (±1.2) | 42.0 (±2.3) | 47.8 (±1.1) |
| 18-24 | 16.1 (±2.4) | 58.4 (±2.7) | 29.9 (±3.1) | 57.3 (±1.0) | 37.9 (±1.6) | 47.7 (±1.0) |
| 25-40 | 13.0 (±1.1) | 52.2 (±2.0) | 20.1 (±1.5) | 56.5 (±1.5) | 23.2 (±1.6) | 54.9 (±2.0) |
| 41+ | 10.3 (±0.8) | 43.9 (±1.8) | 14.9 (±1.4) | 49.1 (±1.8) | 13.6 (±1.2) | 49.5 (±1.7) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1996, 1999, 2002

Table A.10.2 presents detailed breakouts of recall of anti-tobacco media by demographic group and smoking status. The table shows that the overall percentage of adolescents who reported seeing at least a few anti-tobacco messages on billboards in the last month increased from 1996 to 1999. The percentage that reported hearing at least a few anti-tobacco radio messages in the last month increased from 1996 to 1999, but decreased slightly in 2002. The percentage of those who reported seeing at least a few anti-tobacco TV messages in the last month increased significantly from 1996 to 1999, but remained at the same level in 2002. TV messages appear to have provided the greatest level of adolescent exposure to anti-tobacco media. When all media (billboards, radio, and TV) were combined, exposure to anti-tobacco media increased significantly from 1996 to 1999, and remained at the same level in 2002. Though this plateau may indicate audience saturation from 1999 to 2002, it does not allow interpretation of the differential impact of different types of ad campaigns run in California and nationally during this period.

Girls were less likely than boys to report seeing these messages on billboards, and were more likely to report hearing them on radio. Younger adolescents were more likely to report seeing these messages on billboards than were older adolescents. In 2002, significantly fewer Non-Hispanic Whites heard anti-tobacco radio messages in the last month compared to other ethnic groups. There were few significant differences related to school performance or smoking status.

Overall, results indicate that televised anti-tobacco campaigns provided the greatest population exposure of adolescents to anti-tobacco media messages. Billboard campaigns provided the second highest level of exposure, though at much lower levels than television. Radio campaigns provided the least amount of exposure of the three media, with resulting exposure levels about half of those resulting from televised anti-tobacco campaigns. However, it appears that radio and billboard campaigns significantly increased exposure beyond that achieved through television alone.

Table A.10.2
Adolescents' Exposure to Anti-Tobacco Messages from Billboards, Radio, and TV

| | Billboards % | | | Radio % | | | TV % | | | Billboards, Radio, or TV % | | |
|---------------------------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------------------------|-------------|-------------|
| | 1996 | 1999 | 2002 | 1996 | 1999 | 2002 | 1996 | 1999 | 2002 | 1996 | 1999 | 2002 |
| Overall | 58.0 (±1.5) | 73.7 (±1.4) | 69.3 (±1.2) | 44.2 (±1.3) | 56.1 (±1.5) | 52.5 (±2.7) | 75.6 (±1.3) | 88.5 (±1.0) | 88.0 (±0.9) | 90.8 (±1.0) | 96.7 (±0.5) | 96.0 (±0.5) |
| Gender | | | | | | | | | | | | |
| Male | 59.7 (±1.9) | 76.0 (±1.8) | 72.3 (±2.0) | 40.8 (±1.9) | 52.1 (±1.9) | 48.8 (±2.0) | 77.2 (±1.9) | 89.8 (±1.4) | 88.6 (±1.1) | 91.6 (±1.2) | 96.8 (±0.9) | 96.1 (±0.7) |
| Female | 56.1 (±2.2) | 71.3 (±2.1) | 66.1 (±2.0) | 48.0 (±2.1) | 60.4 (±2.4) | 56.4 (±2.0) | 74.1 (±1.8) | 87.2 (±1.6) | 87.5 (±1.5) | 89.9 (±1.4) | 96.6 (±0.8) | 96.0 (±0.4) |
| Age | | | | | | | | | | | | |
| 12 to 14 | 58.0 (±1.8) | 75.9 (±1.8) | 71.5 (±1.5) | 41.8 (±2.3) | 55.3 (±2.0) | 51.4 (±2.1) | 74.7 (±1.8) | 88.5 (±0.7) | 86.3 (±1.5) | 90.1 (±1.3) | 96.8 (±0.7) | 95.8 (±0.7) |
| 15 to 17 | 58.0 (±2.0) | 71.4 (±2.4) | 66.8 (±1.8) | 46.7 (±1.8) | 56.9 (±2.2) | 53.5 (±2.2) | 76.7 (±1.5) | 88.6 (±1.2) | 89.8 (±1.1) | 91.5 (±1.3) | 96.7 (±0.8) | 96.3 (±0.6) |
| Ethnicity | | | | | | | | | | | | |
| African American | 60.4 (±4.9) | 76.0 (±4.9) | 72.5 (±4.8) | 52.0 (±4.8) | 53.0 (±6.4) | 58.9 (±2.4) | 69.5 (±4.8) | 84.9 (±4.2) | 91.9 (±4.2) | 92.0 (±3.8) | 95.3 (±2.6) | 97.5 (±1.4) |
| Asian/PI | 57.5 (±5.0) | 75.8 (±4.2) | 64.4 (±5.2) | 46.0 (±4.5) | 59.3 (±5.8) | 54.5 (±4.5) | 79.5 (±3.4) | 91.4 (±3.5) | 88.0 (±4.7) | 92.4 (±2.5) | 97.5 (±2.5) | 95.6 (±1.8) |
| Hispanic | 61.2 (±2.9) | 72.3 (±2.3) | 69.5 (±2.0) | 44.2 (±2.8) | 56.1 (±3.0) | 53.6 (±2.4) | 75.8 (±2.2) | 87.7 (±1.6) | 88.6 (±1.8) | 91.3 (±1.7) | 96.8 (±0.8) | 96.1 (±0.9) |
| Non-Hisp White | 55.7 (±1.5) | 74.2 (±1.7) | 70.0 (±1.9) | 42.6 (±1.5) | 55.9 (±2.1) | 49.1 (±2.2) | 75.6 (±1.7) | 89.0 (±1.6) | 86.8 (±1.4) | 89.9 (±1.3) | 96.5 (±1.4) | 95.8 (±0.8) |
| School Performance | | | | | | | | | | | | |
| Much better than average | 59.2 (±3.2) | 74.9 (±3.3) | 70.6 (±3.1) | 43.1 (±2.6) | 57.2 (±4.1) | 55.3 (±2.5) | 76.9 (±2.8) | 90.4 (±2.1) | 88.2 (±1.9) | 91.2 (±1.6) | 97.1 (±1.2) | 95.8 (±1.3) |
| Better than average | 58.3 (±1.8) | 74.2 (±2.4) | 70.2 (±1.9) | 45.7 (±2.3) | 55.9 (±2.4) | 53.4 (±2.5) | 78.0 (±2.0) | 89.2 (±1.4) | 89.7 (±1.3) | 91.9 (±1.6) | 96.6 (±0.9) | 97.0 (±0.7) |
| Average and below | 57.0 (±2.3) | 72.6 (±2.0) | 67.6 (±2.4) | 43.5 (±2.4) | 55.8 (±2.5) | 50.4 (±2.3) | 73.0 (±2.1) | 87.0 (±1.3) | 86.3 (±1.3) | 89.5 (±1.5) | 96.7 (±0.8) | 95.3 (±0.9) |
| Smoking status | | | | | | | | | | | | |
| Committed never smoker | 55.7 (±2.5) | 73.3 (±2.5) | 67.5 (±2.3) | 44.7 (±2.0) | 55.1 (±2.7) | 52.3 (±2.3) | 74.7 (±2.3) | 87.2 (±1.7) | 87.7 (±1.6) | 89.8 (±1.7) | 95.7 (±1.1) | 95.3 (±1.0) |
| Susceptible never smoker | 58.2 (±2.4) | 74.6 (±2.6) | 72.0 (±2.0) | 42.6 (±2.7) | 56.3 (±2.4) | 53.3 (±2.4) | 76.5 (±2.1) | 89.2 (±1.7) | 88.3 (±1.4) | 91.0 (±1.5) | 97.1 (±0.9) | 96.9 (±0.8) |
| Experimenter | 59.8 (±2.3) | 73.1 (±2.7) | 67.5 (±3.2) | 45.1 (±2.9) | 57.0 (±3.1) | 51.5 (±3.0) | 75.7 (±2.6) | 89.8 (±1.8) | 88.2 (±2.1) | 91.1 (±1.9) | 97.9 (±1.0) | 95.7 (±1.4) |
| Established Smoker | 60.4 (±6.2) | 73.6 (±5.4) | 67.5 (±8.0) | 46.9 (±5.9) | 58.6 (±6.4) | 47.6 (±8.5) | 77.1 (±4.2) | 88.5 (±3.9) | 88.8 (±5.0) | 92.9 (±2.7) | 96.8 (±2.2) | 97.9 (±2.5) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1996, 1999, 2002

2. Favorite Cigarette Advertisement

Table A.10.3 displays the percentages of favorite cigarette advertisements for adolescents, young adults, and older adults, which are plotted in Figure 10.2.

| Table A.10.3 Favorite Cigarette Advertisement for Adolescents, Young Adults, and Older Adults | | | | |
|--|--------------|-------------|-------------|-------------|
| | 1992-93 % | 1996 % | 1999 % | 2002 % |
| Camel | | | | |
| 12-14 yrs. | 37.4 (±2.3) | 35.4 (±1.6) | 23.0 (±1.8) | 14.7 (±2.2) |
| 15-17 yrs. | 35.2 (±2.7) | 36.7 (±2.0) | 24.3 (±1.8) | 16.1 (±2.0) |
| 18-24 yrs. | 24.6 (±5.5) | 26.7 (±2.5) | 22.0 (±2.7) | 13.7 (±1.1) |
| 25-40 yrs. | 17.4 (±1.9) | 19.0 (±1.5) | 13.9 (±1.3) | 10.8 (±1.3) |
| 41+ yrs. | 12.9 (±1.4) | 12.8 (±1.0) | 8.2 (±0.9) | 7.4 (±0.9) |
| Marlboro | | | | |
| 12-14 yrs. | 16.6 (±2.0) | 16.5 (±1.5) | 22.1 (±2.0) | 15.5 (±2.2) |
| 15-17 yrs. | 21.7 (±2.5) | 24.8 (±1.8) | 26.4 (±2.0) | 21.9 (±2.0) |
| 18-24 yrs. | 26.4 (±3.6) | 24.1 (±2.6) | 26.5 (±3.2) | 24.5 (±1.3) |
| 25-40 yrs. | 20.7 (±1.6) | 22.7 (±1.7) | 24.0 (±1.7) | 23.6 (±1.6) |
| 41+ yrs. | 9.4 (±1.1) | 16.5 (±1.2) | 20.5 (±1.7) | 20.5 (±1.2) |
| None | | | | |
| 12-14 yrs. | 37.0 (±2.4) | 40.1 (±1.7) | 47.7 (±2.0) | 65.2 (±2.0) |
| 15-17 yrs. | 31.8 (±2.6) | 31.0 (±1.7) | 39.5 (±2.1) | 53.4 (±2.0) |
| 18-24 yrs. | 37.1 (±6.1) | 41.8 (±2.9) | 42.8 (±3.6) | 54.8 (±1.1) |
| 25-40 yrs. | 47.3 (±2.3) | 50.4 (±2.0) | 53.9 (±1.6) | 59.0 (±2.0) |
| 41+ yrs. | 63.2 (±1.7) | 63.8 (±1.8) | 64.1 (±1.6) | 66.3 (±1.5) |

SOURCE: CTS 1992-93, 1996, 1999, 2002

Table A.10.4 shows that overall, the popularity of the Camel brand has significantly decreased among adolescents from 1993 to 2002, and the proportion of adolescents who do not have a favorite cigarette advertisement has significantly increased from 1996 to 2002. Girls were less likely than boys to name Marlboro or Camel as their favorite cigarette ad, and more likely than boys to have no favorite ad. Significantly fewer African-American adolescents named Marlboro as their favorite ad in each year, compared to adolescents of other ethnic groups. Slightly more Hispanic adolescents named Marlboro in each year, compared to adolescents of other ethnic groups. Adolescents who reported they performed at an average or below average level in school were more likely to name Marlboro as their favorite ad, and were slightly less likely to have no favorite ad, in each year. Committed never smokers were significantly more likely, and experimenters and established smokers were significantly less likely, to have

no favorite tobacco ad. Correspondingly, significantly more experimenters and established smokers named Marlboro or Camel as the brand of their favorite ad, compared to committed never smokers.

Table A.10.4
Adolescents' Named Brand of Favorite Advertisement

| | Marlboro % | | | | Camel % | | | | None % | | | |
|---------------------------|---------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | 1993 | 1996 | 1999 | 2002 | 1993 | 1996 | 1999 | 2002 | 1993 | 1996 | 1999 | 2002 |
| Overall | 19.0 (±1.6) | 20.6 (±1.3) | 24.2 (±1.5) | 18.6 (±1.5) | 36.4 (±1.8) | 36.0 (±1.1) | 23.6 (±1.2) | 15.4 (±1.5) | 34.6 (±2.0) | 35.5 (±1.2) | 43.7 (±1.4) | 59.5 (±1.2) |
| Gender | | | | | | | | | | | | |
| Male | 20.3 (±2.3) | 23.9 (±1.8) | 27.3 (±2.0) | 20.4 (±2.0) | 43.4 (±2.5) | 38.6 (±1.8) | 24.2 (±1.6) | 17.1 (±2.0) | 30.2 (±3.0) | 32.0 (±1.5) | 41.2 (±1.9) | 56.4 (±1.9) |
| Female | 17.7 (±1.9) | 17.1 (±1.8) | 20.9 (±1.7) | 16.6 (±1.9) | 29.4 (±2.6) | 39.0 (±2.0) | 23.0 (±1.6) | 13.5 (±1.9) | 38.8 (±3.0) | 39.4 (±1.9) | 46.3 (±2.0) | 62.9 (±2.2) |
| Age | | | | | | | | | | | | |
| 12 to 14 | 16.6 (±2.0) | 16.5 (±1.5) | 22.1 (±2.0) | 15.5 (±2.2) | 37.4 (±2.3) | 35.4 (±1.6) | 23.0 (±1.8) | 14.7 (±2.2) | 37.0 (±2.4) | 40.1 (±1.7) | 47.7 (±2.0) | 65.2 (±2.0) |
| 15 to 17 | 21.7 (±2.5) | 24.8 (±1.8) | 26.4 (±2.0) | 21.9 (±2.0) | 35.2 (±2.7) | 36.7 (±2.0) | 24.3 (±1.8) | 16.1 (±2.0) | 31.8 (±2.6) | 31.0 (±1.7) | 39.5 (±2.1) | 53.4 (±2.0) |
| Ethnicity | | | | | | | | | | | | |
| African American | 6.5 (±2.8) | 6.3 (±2.5) | 13.7 (±3.7) | 11.6 (±3.9) | 32.9 (±7.2) | 30.8 (±3.6) | 24.8 (±5.4) | 15.2 (±3.9) | 39.2 (±8.3) | 40.1 (±4.1) | 41.7 (±4.6) | 59.1 (±5.8) |
| Asian/PI | 16.3 (±4.1) | 23.5 (±3.6) | 22.8 (±5.5) | 14.4 (±6.0) | 29.1 (±5.6) | 29.7 (±4.8) | 23.2 (±4.4) | 13.2 (±6.0) | 44.9 (±6.3) | 38.6 (±4.6) | 44.3 (±5.2) | 66.0 (±4.3) |
| Hispanic | 23.6 (±3.3) | 24.6 (±2.5) | 27.4 (±2.3) | 21.0 (±2.4) | 34.5 (±3.9) | 32.2 (±2.6) | 19.1 (±1.8) | 13.1 (±2.4) | 34.1 (±3.9) | 37.7 (±2.6) | 47.5 (±2.3) | 60.6 (±2.3) |
| Non-Hisp White | 18.6 (±1.9) | 19.5 (±1.5) | 23.8 (±1.8) | 19.0 (±1.9) | 39.6 (±2.3) | 40.4 (±1.6) | 27.8 (±1.6) | 17.7 (±1.9) | 32.1 (±2.3) | 32.9 (±1.8) | 40.5 (±2.1) | 57.3 (±2.2) |
| School Performance | | | | | | | | | | | | |
| Much better than average | 16.4 (±3.1) | 16.7 (±2.7) | 20.3 (±2.3) | 17.8 (±2.5) | 35.4 (±2.0) | 35.5 (±2.5) | 22.9 (±2.1) | 14.5 (±2.5) | 38.5 (±4.6) | 38.1 (±2.9) | 45.5 (±2.5) | 62.3 (±3.2) |
| Better than average | 16.3 (±2.8) | 18.6 (±1.8) | 23.0 (±2.2) | 17.7 (±2.2) | 35.4 (±3.3) | 39.6 (±2.3) | 25.5 (±2.0) | 15.9 (±2.2) | 36.1 (±3.3) | 34.5 (±2.0) | 43.3 (±2.4) | 60.0 (±2.0) |
| Average and below | 22.3 (±2.5) | 24.9 (±2.1) | 27.3 (±2.0) | 20.0 (±2.0) | 36.9 (±2.7) | 33.3 (±1.9) | 22.4 (±1.7) | 15.4 (±2.0) | 31.7 (±2.6) | 34.6 (±2.1) | 42.9 (±2.4) | 57.4 (±2.5) |
| Smoking status | | | | | | | | | | | | |
| Committed never smoker | 13.8 (±1.8) | 14.2 (±1.9) | 19.1 (±2.2) | 14.3 (±1.6) | 32.4 (±2.2) | 30.7 (±1.8) | 20.4 (±2.1) | 13.0 (±1.4) | 45.0 (±2.7) | 48.2 (±2.2) | 53.5 (±2.4) | 67.2 (±1.8) |
| Susceptible never smoker | 22.6 (±4.7) | 18.4 (±2.1) | 23.6 (±2.4) | 18.8 (±1.9) | 36.6 (±4.6) | 38.1 (±2.3) | 24.1 (±2.3) | 16.7 (±1.7) | 31.0 (±4.8) | 36.2 (±2.2) | 43.6 (±2.3) | 58.8 (±2.3) |
| Experimenter | 22.4 (±2.6) | 26.8 (±2.9) | 31.0 (±2.8) | 25.6 (±2.9) | 42.3 (±3.5) | 39.2 (±2.7) | 27.0 (±2.8) | 17.6 (±2.9) | 23.4 (±3.0) | 24.2 (±2.3) | 31.9 (±2.5) | 47.2 (±3.4) |
| Established Smoker | 36.8 (±7.5) | 37.3 (±5.3) | 38.1 (±6.5) | 41.0 (±6.9) | 38.8 (±6.3) | 38.5 (±4.2) | 31.3 (±4.7) | 19.1 (±6.9) | 12.3 (±4.2) | 15.7 (±4.1) | 18.2 (±6.1) | 24.0 (±6.8) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1993, 1996, 1999, 2002

3. Cigarette Promotional Items

Table A.10.5 displays the data plotted in Figure 10.5, and shows the percentage of adolescents, young adults, and older adults who own or would use a tobacco promotional item.

| Table A.10.5 Own or Would Use Tobacco Promotional Item | | | | | | | | |
|---|-------------|-------------|-------------|------------|-------------|-------------|-------------|-------------|
| Age | Own | | | | Would Use | | | |
| | 1993 % | 1996 % | 1999 % | 2002 % | 1993 % | 1996 % | 1999 % | 2002 % |
| 12-14 | 5.4 (01.0) | 11.5 (01.3) | 8.1 (01.1) | 6.2 (01.0) | 22.5 (02.1) | 25.4 (01.7) | 17.6 (01.6) | 13.7 (01.4) |
| 15-17 | 12.8 (01.6) | 15.8 (01.6) | 9.8 (01.3) | 7.5 (01.3) | 32.8 (02.3) | 34.7 (01.9) | 23.1 (01.7) | 19.8 (02.0) |
| 18-24 | | 15.9 (01.9) | 11.9 (02.0) | 7.9 (00.9) | | | 30.7 (02.8) | 22.0 (01.1) |
| 25-40 | | 13.6 (01.1) | 9.9 (01.1) | 6.8 (00.9) | | | 26.1 (01.5) | 20.7 (01.2) |
| 41+ | | 6.5 (00.7) | 6.6 (01.0) | 4.2 (00.6) | | | 19.7 (01.4) | 17.4 (01.2) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1993, 1996, 1999, 2002

Table A.10.6 shows that overall, the percentage of adolescents who reported they had either exchanged coupons for, received as a gift, or purchased a tobacco brand item in the last year decreased significantly, by a factor of 34.5%, between 1996 and 1999. This percentage significantly decreased further, by a factor of 23.6%, between 1999 and 2002. In all survey years presented, boys were significantly more likely than girls to have obtained tobacco brand merchandise in the last year. In 1996, older teens were slightly more likely to have obtained an item, but this difference was not significant in 1999 or 2002. In all years, there were no significant differences across racial/ethnic groups in the percent of adolescents who reported they had obtained tobacco brand items. Obtaining items was less prevalent in students with much better or better than average school performance.

| Table A.10.6 Adolescents who Obtained Tobacco Brand Promotional Items (Exchanged Coupons, Received Free, or Purchased) in the Last Year | | | |
|--|-------------------------|-------------------------|-------------------------|
| | 1996 % | 1999 % | 2002 % |
| Overall | 13.7 (∂1.1) | 8.9 (∂0.8) | 6.8 (∂0.8) |
| Gender | | | |
| Male | 16.2 (∂1.8) | 10.8 (∂1.3) | 8.0 (∂1.2) |
| Female | 10.9 (∂1.3) | 6.9 (∂1.1) | 5.6 (∂1.0) |
| Age | | | |
| 12 to 14 | 11.5 (∂1.3) | 8.1 (∂1.1) | 6.2 (∂1.0) |
| 15 to 17 | 15.8 (∂1.6) | 9.8 (∂1.3) | 7.5 (∂1.3) |
| Ethnicity | | | |
| African American | 11.9 (∂3.8) | 7.9 (∂3.0) | 7.5 (∂3.3) |
| Asian/PI | 14.1 (∂3.7) | 8.3 (∂3.1) | 5.9 (∂2.0) |
| Hispanic | 12.5 (∂2.0) | 8.6 (∂1.5) | 7.4 (∂0.9) |
| Non-Hispanic White | 14.1 (∂1.1) | 9.3 (∂1.1) | 5.8 (∂1.4) |
| School Performance | | | |
| Much better than average | 10.3 (∂1.5) | 7.1 (∂1.8) | 4.9 (∂1.4) |
| Better than average | 13.3 (∂1.8) | 8.3 (∂1.5) | 5.7 (∂1.1) |
| Average and below | 15.8 (∂1.9) | 10.3 (∂1.4) | 8.9 (∂1.5) |
| Smoking Status | | | |
| Committed never smoker | 7.1 (∂1.1) | 4.7 (∂1.0) | 4.1 (∂0.8) |
| Susceptible never smoker | 10.3 (∂1.8) | 8.4 (∂1.5) | 6.8 (∂1.2) |
| Experimenter | 18.6 (∂2.9) | 13.0 (∂2.2) | 11.3 (∂2.3) |
| Established smoker | 40.9 (∂5.2) | 29.5 (∂6.9) | 23.5 (∂8.0) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

Source: CTS 1996, 1999, 2002

Table A.10.7 shows that among adolescents, those willing to use a tobacco promotional item declined significantly from 1996 to 1999, and from 1999 to 2002, representing a factor decrease of 50.8% from 1996 to 2002. Significantly fewer girls than boys were willing to use a tobacco brand promotional item in any year. Also, in each year a significantly lower percentage of younger adolescents (12 to 14 years) were willing to use a promotional item, compared to older adolescents (15 to 17 years).

In 1996, there were no significant differences across racial/ethnic groups in the percentage of adolescents willing to use a tobacco brand promotional item. By 1999, significantly more Hispanic teens than African Americans or Non-Hispanic Whites were willing to use a tobacco brand promotional item. In 2002, significantly more Hispanic teens than those of other racial/ethnic groups were willing to use a tobacco promotional item. In all years, willingness to use an item was directly related to smoking experience, and inversely related to self-perceived school performance.

| Table A.10.7 | | | |
|---|-------------------|-------------------|-------------------|
| Adolescent Willingness to Use a Tobacco Brand Promotional Item | | | |
| | 1996 % | 1999 % | 2002 % |
| Overall | 23.4 (±1.1) | 14.7 (±1.1) | 11.5 (±1.0) |
| Gender | | | |
| Male | 28.4 (±1.8) | 19.5 (±1.7) | 15.1 (±1.5) |
| Female | 17.8 (±1.7) | 9.5 (±1.3) | 7.7 (±1.1) |
| Age | | | |
| 12 to 14 | 19.0 (±1.5) | 11.6 (±1.3) | 8.9 (±1.1) |
| 15 to 17 | 27.7 (±1.6) | 17.9 (±1.5) | 14.3 (±1.6) |
| Ethnicity | | | |
| African-American | 18.1 (±3.8) | 11.4 (±3.1) | 10.6 (±3.6) |
| Asian/PI | 22.7 (±5.0) | 14.2 (±3.6) | 8.6 (±2.3) |
| Hispanic | 25.0 (±2.8) | 17.3 (±2.3) | 13.4 (±1.3) |
| Non-Hispanic White | 23.2 (±1.6) | 12.9 (±1.3) | 9.8 (±1.5) |
| School Performance | | | |
| Much better than average | 16.4 (±2.2) | 11.6 (±1.9) | 7.8 (±1.5) |
| Better than average | 22.9 (±1.9) | 12.9 (±1.7) | 10.3 (±1.6) |
| Average and below | 27.9 (±1.9) | 17.7 (±2.0) | 14.5 (±1.7) |
| Smoking Status | | | |
| Committed never smoker | 10.9 (±1.5) | 7.6 (±1.5) | 5.0 (±1.0) |
| Susceptible never smoker | 23.5 (±2.1) | 16.1 (±1.8) | 13.7 (±1.6) |
| Experimenter | 30.5 (±2.1) | 19.8 (±2.7) | 20.1 (±3.4) |
| Established Smoker | 52.8 (±5.4) | 40.6 (±6.1) | 28.6 (±6.9) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1996, 1999, 2002

4. Exposure to Cigarette Logos on Televised Sporting Events

Table A.10.8 shows that overall, the percentage of adolescents who reported seeing a tobacco logo on a televised sports event very often in the last year decreased by a factor of 36.4%, from 18.9 \pm 1.1% in 1996 to 12.1 \pm 1.0% in 1999. The decrease was slightly larger for females compared to males, and was quite large (43.0%) for 12- to 14-year-olds. Importantly, this trend did not continue from 1999 to 2002.

In 1996, a significantly higher percentage of Non-Hispanic Whites reported seeing a tobacco logo on a televised sports event very often in the past year, compared to respondents of other ethnic groups. By 1999, there were no significant differences in exposure among ethnic groups. In 2002, Asians/Pacific Islanders were less likely than Hispanics or Non-Hispanic Whites to report seeing a tobacco logo on a televised sports event. Exposure did not vary significantly by school performance or smoking status.

| Table A.10.8 Adolescents Reporting Seeing a Tobacco Logo on a Televised Sports Event Very Often in the Last Year | | | |
|---|-------------------|-------------------|-------------------|
| | 1996 % | 1999 % | 2002 % |
| Overall | 18.9 (\pm 1.1) | 12.1 (\pm 1.0) | 12.9 (\pm 1.0) |
| Gender | | | |
| Male | 22.0 (\pm 1.9) | 14.4 (\pm 1.4) | 14.8 (\pm 1.6) |
| Female | 15.4 (\pm 1.3) | 9.5 (\pm 1.5) | 11.0 (\pm 1.6) |
| Age | | | |
| 12 to 14 | 17.9 (\pm 1.6) | 10.2 (\pm 1.1) | 12.4 (\pm 1.2) |
| 15 to 17 | 19.9 (\pm 1.5) | 14.0 (\pm 1.4) | 13.5 (\pm 1.3) |
| Ethnicity | | | |
| African American | 16.6 (\pm 3.6) | 13.4 (\pm 4.3) | 11.9 (\pm 3.7) |
| Asian/PI | 16.0 (\pm 3.1) | 11.1 (\pm 3.6) | 8.3 (\pm 3.2) |
| Hispanic | 16.3 (\pm 1.7) | 10.4 (\pm 1.4) | 13.5 (\pm 1.5) |
| Non-Hispanic White | 21.8 (\pm 1.6) | 13.8 (\pm 1.6) | 14.3 (\pm 1.5) |
| School Performance | | | |
| Much better than average | 20.8 (\pm 2.5) | 14.4 (\pm 2.6) | 13.0 (\pm 2.2) |
| Better than average | 18.9 (\pm 1.8) | 11.7 (\pm 1.7) | 13.3 (\pm 1.7) |
| Average and below | 17.9 (\pm 1.5) | 11.1 (\pm 1.4) | 12.7 (\pm 1.4) |
| Smoking Status | | | |
| Committed never smoker | 18.1 (\pm 2.0) | 11.9 (\pm 1.4) | 12.7 (\pm 1.6) |
| Susceptible never smoker | 17.4 (\pm 2.0) | 10.7 (\pm 1.5) | 12.6 (\pm 1.6) |
| Experimenter | 20.4 (\pm 2.4) | 13.8 (\pm 2.5) | 14.4 (\pm 2.3) |
| Established smoker | 23.0 (\pm 5.0) | 15.3 (\pm 4.7) | 12.8 (\pm 6.0) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1996, 1999, 2002

GLOSSARY

Adolescents

Committed never smoker – a *never smoker* who answers “definitely not” in answer to three questions: trying a cigarette soon, accepting a cigarette if offered by a best friend, and likelihood of smoking in the next year.

Established smoker – has smoked at least 100 cigarettes in his or her lifetime.

Experimenter – has smoked a cigarette (excludes puffers), but has not smoked at least 100 cigarettes in his or her lifetime.

Never smoker – has never smoked or even puffed on a cigarette.

Susceptible never smoker – a *never smoker* who fails to answer “definitely not” to all three questions about trying a cigarette soon, accepting a cigarette if offered by a best friend, and their likelihood of smoking in the next year.

REFERENCES

- Biener L, Siegel M. Tobacco marketing and adolescent smoking: more support for a causal inference. *Am J Public Health*. **2000**;90:407-411.
- Cummings KM, Morley CP, Horan JK, Steger C, Leavell NR. Marketing to America's youth: evidence from corporate documents. *Tob Control*. **2002**;11(Suppl I):I5-I17.
- Difranza JR, Richards JW, Paulman PM, Wolf-Gillespie N, Fletcher C, Jaffe RD, Murray D. RJR Nabisco's cartoon camel promotes Camel cigarettes to children. *JAMA*. **1991**;266:3149-3153.
- Evans N, Farkas A, Gilpin E, Berry C, Pierce JP. Influence of tobacco marketing and exposure to smokers on adolescent susceptibility to smoking. *J Natl Cancer Inst*. **1995**;87:1538-1545.
- Farrelley MC, Heulton CG, Davis KC, Messeri P, Hersey JP, Haviland ML. Getting to the truth: Evaluating the national tobacco countermarketing campaigns. *Am J Public Health*. **2002**;92:901-907.
- Fisher PM, Schwartz MP, Richards JW, Goldstein AO, Rojas TH. Brand recognition by children aged 3 to 6 years. Mickey Mouse and Old Joe the Camel. *JAMA*. **1991**;266:3145-3148.
- Hamilton WL, Turner-Bowker DM, Celebucki CC, Connolly GN. Cigarette advertising in magazines: the tobacco industry response to the Master Settlement Agreement and to public pressure. *Tob Control*. **2002**;11(Suppl II II):ii54-ii58.
- Hurt RD, Tobertson CR. Prying open the door to the tobacco industry's secrets about nicotine. *JAMA*. **1998**;280:1173-1181,
- King C, Siegel M, Celebucki C, Connolly GN. Adolescent exposure to cigarette advertising in magazines: An evaluation of brand-specific advertising in relation to youth readership. *JAMA*. **1998**;279:516-520.
- MacKenzie SB, Lutz RJ, Belch GE. The role of attitude toward the ad as a mediator of advertising effectiveness: a test of competing explanations. *J Marketing Res*. **1986**;23:130-143.
- National Cancer Institute (NCI). *Risks Associated with Smoking Cigarettes with Low Machine-Measured Yields of Tar and Nicotine*. Smoking and Tobacco Control Monograph No. 13. Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute; **2001**. (NIH Pub. No. 02-5074).

- Orzechowski & Walter. *The Tax Burden on Tobacco. Historical Compilation*. Vol 37, 2002. Arlington, VA; Orzechowski & Walker; **2002**.
- Perry CL. The tobacco industry and underage youth smoking –Tobacco industry documents from the Minnesota litigation. *Arch Pediatr Adolesc Med*. **1999**;153:935-941.
- Pierce JP, Choi WS, Gilpin EA, Farkas AJ, Berry CC. Tobacco industry promotion of cigarettes and adolescent smoking. *JAMA*. **1998**;279:511-515.
- Pierce JP, Gilpin E, Burns DM, Whalen E, Rosbrook B, Shopland D, Johnson M. Does tobacco advertising target young people to start smoking? Evidence from California. *JAMA*. **1991**;266:3154-3158
- Ray ML. *Advertising and Communication Management*. Englewood Cliffs, NJ: Prentice Hall; **1982**.
- Sargent JD, Dalton M, Beach M, Bernhardt A, Heatherton T, Stevens M. Effect of cigarette promotions on smoking uptake among adolescents. *Prev Med*. **2000**;30:320-327.
- Tobacco Education and Research Oversight Committee (TEROC). “Toward a Tobacco-Free California: Fourth Master Plan for the California Tobacco Control Program.” Tobacco Education and Research Oversight Committee: Sacramento, CA; **1997**.
- Tobacco Control Resource Center, Inc. The Multistate Master Settlement Agreement and the Future of State and Local Tobacco Control. Northeastern University School of Law, **1999**. <http://www.tobacco.neu.edu/msa/> Accessed July 3, 2003.
- Unger JB, Cruz TB, Schuster D, Flora JA, Johnson CA. Measuring exposure to pro- and anti-tobacco marketing among adolescents: Intercorrelations among measures and associations with smoking status. *J Health Com*. **2001**;6:11-29.
- Wilkenfeld J, Henningfield J, Slade J, Burns D, Pinney J. It’s time for a change: Cigarette smokers deserve meaningful information about their cigarettes. *J Natl Can Inst*. **2000**;92:90-92.

TOBACCO CONTROL SUCCESSES IN CALIFORNIA:
A FOCUS ON YOUNG PEOPLE

Chapter 11

Limiting Youth Access to Cigarettes

| | |
|--|--------------|
| KEY FINDINGS | 11-2 |
| Introduction..... | 11-3 |
| 1. Adolescents' Perceived Ease of Obtaining Cigarettes..... | 11-4 |
| 2. Adolescent Sources of Cigarettes..... | 11-7 |
| Offer of a Cigarette | 11-7 |
| Social vs. Commercial Sources..... | 11-8 |
| Cheaper Nonconventional Commercial Sources | 11-11 |
| Regular Commercial Sources..... | 11-12 |
| 3. Enforcement of Laws Around Illegal Sales of Tobacco to Minors | 11-13 |
| 4. Summary | 11-13 |
| APPENDIX | 11-15 |
| 1. Adolescents who think cigarettes are easy to get..... | 11-15 |
| 2. Adolescent never smokers offered a cigarette | 11-18 |
| 3. Usual Source of Cigarettes – Data..... | 11-19 |
| GLOSSARY | 11-20 |
| REFERENCES..... | 11-21 |

Chapter

11

KEY FINDINGS

Limiting Youth Access to Cigarettes

- 1) **The perceived ease of buying a few cigarettes has continued to decline since 1996.** This decline was highly significant among never smokers and experimenters. For example, among committed never smokers, perceived ease declined from 29.1% in 1999 to 17.6% in 2002, a factor decline of 39.5%.
- 2) **The percentage of all 15- to 17-year olds reporting that they thought it would be easy to buy a pack of cigarettes declined significantly between 1999 and 2002** (40.8% to 34.2%; a factor decline of 16.2%). However, among ever smokers the percentages were the same in 1999 and 2002.
- 3) **Adolescent never smokers' perception that cigarettes are easy to get decreased between 1996 and 2002.** In 2002, 45.9% of adolescent never smokers said cigarettes were easy to get. This level was 48.0% in 1999, but was significantly higher in 1996, at 57.2%.
- 4) **For the first time since 1990, there has been a decrease in the percentage of never smokers reporting that they have been offered cigarettes,** from 37.0% in 1999 to 31.5% in 2002, a factor change of 14.9%. Nearly all the decline was among committed never smokers, but in 2002, 26.5% of this group still reported an offer, something tobacco control should attempt to reduce further.
- 5) **Most adolescent smokers continued to obtain cigarettes through social sources.** Among ever smokers in 2002, 58.2% reported their usual source of cigarettes as "someone gives them to me." This rate was much higher for experimenters (69.2%), than for daily established smokers (16.4%), who generally buy their cigarettes themselves or through an intermediary.
- 6) **In 1999 and 2002, very few adolescents reported obtaining their cigarettes via alternative commercial sources;** none of the adolescents in the samples reported using the Internet to buy cigarettes in the last year.
- 7) **As in previous years, in 2002, most adolescents who purchased cigarettes did so at outlets most likely to sell tobacco to minors:** gas stations, liquor stores, and small grocery stores.
- 8) **In 2002, only about one quarter (24.5%) of adolescents who usually bought their own cigarettes were asked for ID the last time they attempted to purchase cigarettes,** indicating a clear need for further enforcement of this law.

Limiting Youth Access to Cigarettes

Introduction

There is debate in the tobacco control community on the utility of enforcing laws restricting youth access to tobacco through commercial sources (Glantz, 1996; DiFranza 2000, 2002; DiFranza et al., 2001; Fichtenberg & Glantz, 2002; Ling et al., 2002). Some have criticized the dedication of scarce tobacco control resources to such enforcement efforts. This criticism is based on the evidence that most adolescent experimenters obtain their cigarettes from social rather than commercial sources (Emery et al., 1999; DiFranza & Coleman, 2001; Castrucci et al., 2002), and because of the limited evidence to suggest that access law enforcement reduces youth smoking prevalence (Rigotti et al., 1997; Forster et al., 1997; Altman et al., 1999). However, enforcement of access laws may work indirectly to influence smoking uptake by strengthening societal anti-tobacco norms (Gilpin et al., 2004). The Federal government, through the Synar Amendment, has provided significant incentives for states to work in this area by making federal alcohol and substance abuse block grant funding contingent upon states demonstrating reductions in illegal sales of tobacco to minors (SAMHSA, 1996).

Since California enacted the Stop Tobacco Access to Kids Enforcement (STAKE) Act in 1994, results of annual random compliance checks to determine the statewide rate of illegal sales to minors have varied (Landrine et al., 2000). Steady declines in sales were reported between 1995 and 1997, 37% in 1995, 29.3% in 1996, and 21.7% in 1997 (CDHS, 2000). After seeing some increases in sales to minors between 1999 and 2002, California reported a drop in sales between 2002 and 2003, from about 19% in 2002 to 12.2% in 2003 (Rapaport, 2003).

In January 2002, new tobacco legislation went into effect in California that should affect youth access to tobacco through commercial sources. Changes to the Business and Professional Code (BP2295) tightened existing laws on sales to minors and the STAKE Act, and expanded the authority of the California Department of Health Services to investigate commercial sales of tobacco to minors via telephone marketing, mail offers, and over the Internet. Another recent code change (BP22962) also contributes to restricting access by prohibiting self-service display or sales of cigarettes.

Reducing youth access remains a priority area of the California Tobacco Control Program (TEROC, 2003). In 2000, the Program introduced components aimed at educating the public about the role of social sources (i.e., peers or family members) in enticing youth to smoke, and the need to work toward limiting the availability of cigarettes from such sources.

This chapter presents information obtained from the 2002 and earlier California Tobacco Surveys (CTS) specific to adolescents' access to cigarettes. Section 1 of the chapter presents youth perceptions regarding how easy it is for young people to obtain cigarettes,

and how those perceptions vary by smoking status. Section 2 describes adolescents' usual sources of cigarettes, including offers by peers, commercial versus social sources, and whether youth are obtaining cigarettes from alternative commercial sources such as the Internet. Section 3 looks at adolescent smokers' report of being asked for ID. Section 4 summarizes the findings of the chapter.

1. Adolescents' Perceived Ease of Obtaining Cigarettes

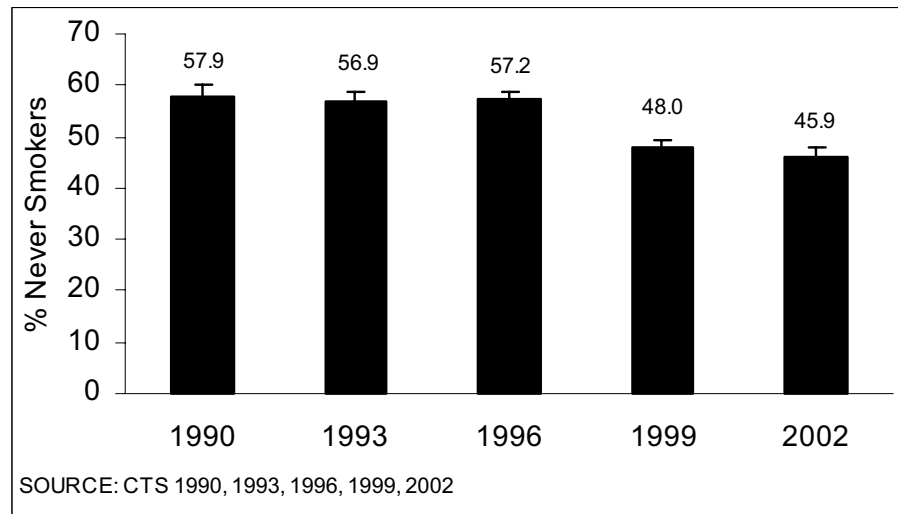
Public policies restricting youth access and the availability of social sources both influence adolescents' perceived ease of access to tobacco. Further, adolescents' perceptions of how easy or hard it is to obtain cigarettes may reflect changing social norms regarding adolescent tobacco use.

From 1990 through 2002, the CTS asked adolescent never smokers (not even a puff) the following question:

Do you think it would be easy or hard for you to get cigarettes if you wanted some?

Figure 11.1 illustrates the recent decline in the percentage of never smokers who thought cigarettes would be easy to get. This perception did not change among never smokers between 1990 and 1996. However, between 1996 and 1999, the percentage of never smokers thinking cigarettes were easy to get declined significantly, with a further but non-significant decline from 1999 to 2002, for an overall decline by a factor of 19.7%

Figure 11.1: Never Smokers Who Think It Would Be Easy to Get Cigarettes



Appendix Table A.11.1 summarizes demographic subgroup differences in the percentage of never smokers reporting that cigarettes would be easy to get at each time point from 1990 to 2002.

In addition to the above question asked of never smokers, beginning in 1996, the following question asked all respondents specifically how easy they thought it would be to purchase cigarettes:

Do you think it would be easy, somewhat difficult, or hard for you to buy

A pack of cigarettes?

A few cigarettes [not a pack or carton])?

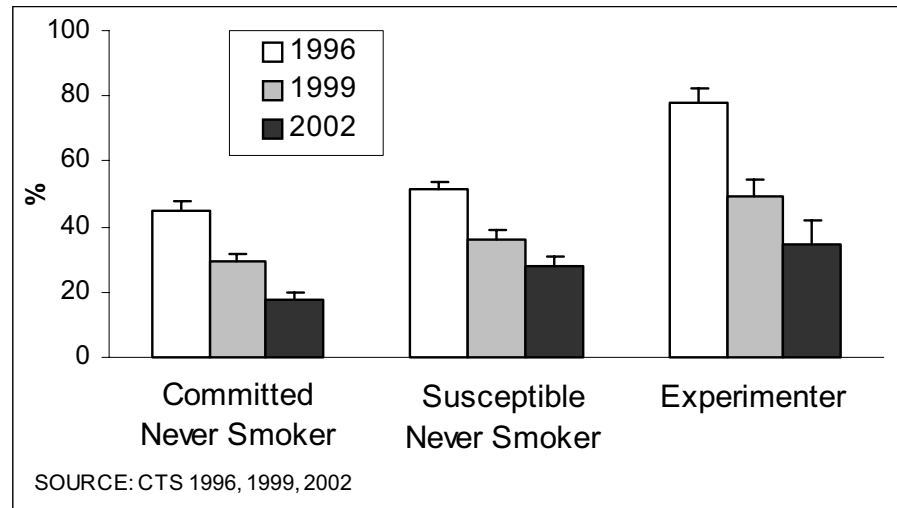
Since the commercial sale of single cigarettes is illegal, adolescent perceptions that purchase of a few cigarettes is easy might indicate either that they believe retailers are selling cigarettes illegally, or that cigarettes can easily be purchased from non-commercial (e.g., social) sources.

Because a youth must be 18 years old to purchase tobacco legally, it would be expected that 15- to 17-year-old adolescents, who look like they might be over 18 years of age, might try to purchase cigarettes by the pack commercially (possibly with the help of false identification). However, 12- to 14-year-old adolescents would be more likely to purchase a few cigarettes from a social source. Thus, the data are analyzed for two age groups by smoking experience.

Overall, in 2002, among 12- to 14-year-olds, 23.8±1.7% perceived that it would be easy to buy a few cigarettes, a significant decrease by a factor of 32.1% from 35.0±1.9% in 1999, and by a factor of 56.3% from 54.5±1.6% in 1996.

Figure 11.2 shows the results by smoking experience and indicates a continued declining trend in committed and susceptible never smokers and experimenters. The difference

Figure 11.2: Perception of Ease of Buying a Few Cigarettes (Ages 12-14 years)

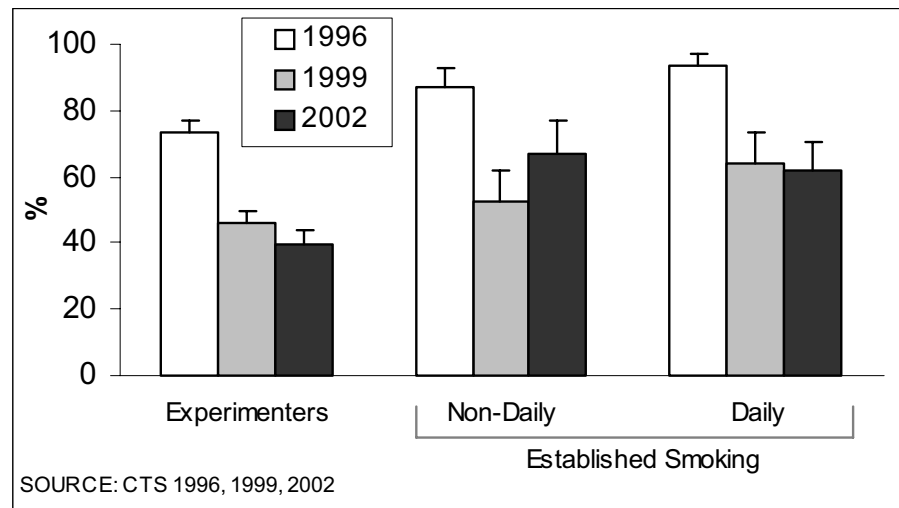


| | 1996 | 1999 | 2002 |
|--------------------------|------|------|------|
| Committed Never Smoker | 44.7 | 29.1 | 17.6 |
| Susceptible Never Smoker | 51.1 | 35.7 | 27.7 |
| Experimenter | 78.0 | 49.6 | 34.8 |

between each successive survey year was significant for all groups. In all years, susceptible never smokers were more likely to think that a few cigarettes were easy to buy than committed never smokers, and experimenters showed higher percentages than never smokers. The decline was most marked among experimenters and in 2002, there was no significant difference between experimenters and susceptible never smokers.

Among all 15- to 17-year-olds, $34.2 \pm 1.9\%$ in 2002 thought it would be easy to buy a pack of cigarettes, which was significantly lower than the percentages in 1999 ($40.8 \pm 1.9\%$) and in 1996 ($69.8 \pm 1.9\%$), but as **Figure 11.3** shows, this was not the case for smokers. For all groups, experimenters and established smokers (non-daily and daily), the percentage perceiving that it would be easy to buy a pack of cigarettes dropped significantly between 1996 and 1999. However, the percentages in each group for 2002 were not significantly different than those in 1999. Thus, it was the never smokers whose perceptions about the ease of buying a pack that have declined.

Figure 11.3: Perception That It Is Easy to Buy a Pack Among Smokers (Ages 15-17)



| | 1996 | 1999 | 2002 |
|---------------|------|------|------|
| Experimenters | 73.2 | 45.7 | 39.9 |
| Non-Daily | 86.8 | 52.5 | 66.6 |
| Daily | 93.4 | 63.7 | 61.7 |

Appendix Tables A.11.2 and A.11.3 present the data on adolescents who report that it is easy to buy a few and a pack of cigarettes.

The data presented in this section indicate that the youngest adolescents with the least smoking experience are continuing to show declines in the percentages who perceive that cigarettes are easy to obtain. These are encouraging findings and these declines mirror the lower levels of experimentation among young adolescents.

2. Adolescent Sources of Cigarettes

As shown in Figure 11.1, almost half of never smokers think it is easy to get a few cigarettes, presumably from a peer. Perhaps these adolescents have been offered this opportunity or witnessed someone offering a peer a cigarette. Further, despite declines, the majority of 15- to 17-year-old established smokers think that it is easy to buy a pack of cigarettes. Thus, it is important to explore adolescents' sources of cigarettes.

Offer of a Cigarette

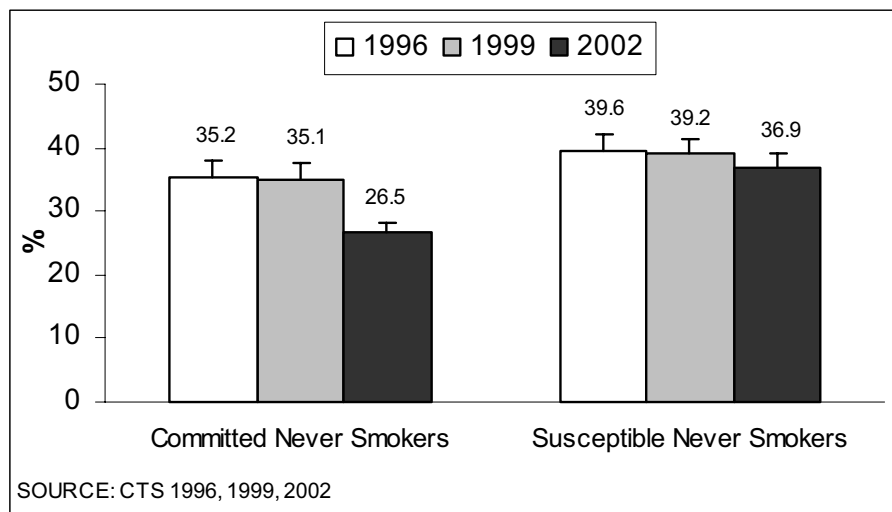
Given the reported decreases in adolescent smoking prevalence (see Chapters 2 and 7), the resulting decrease in the availability of social sources might affect the rate at which adolescents receive an offer of a cigarette. Starting with the 1996 CTS, all adolescent never smokers were asked the following question:

Have you ever been offered a cigarette?

Overall, the percentage of never smokers offered a cigarette was about the same in 1996 ($37.4 \pm 1.8\%$) and 1999 ($37.0 \pm 1.7\%$), but it declined significantly in 2002 ($31.5 \pm 1.4\%$).

Figure 11.4 summarizes the responses to this question for committed and susceptible never smokers.

Figure 11.4: Never Smokers Offered Cigarettes



The offer of a cigarette to a committed never smoker may represent peer pressure to smoke and may be different from an offer to a susceptible never smoker, who might be looking for a cigarette. Since susceptible never smokers may be perceived by others to be more open to an offer of a cigarette than an adolescent who is committed not to smoke, there should be a higher percentage of susceptible never smokers than committed never

smokers who receive an offer. Yet, the group difference (35% vs. 39%) was small and nonsignificant, in both 1996 and 1999. Encouragingly, the percentage of committed never smokers who reported being offered a cigarette decreased substantially between 1999 and 2002, by a factor of 24.5%. However, at about one-quarter of the group, this percentage is still too high and needs to be a focus of further tobacco control efforts.

Appendix Table A.11.4 presents the data regarding offer of a cigarette according to demographic characteristics.

Social vs. Commercial Sources

The ongoing discussion and controversy in the tobacco control community about the value of restricting youth access to tobacco through commercial sources underscores the importance of examining where young smokers say they obtain their cigarettes. Since 1996, the CTS asked all adolescent ever smokers (excluding puffers) the following question:

Which of the following best describes how you usually {get/got} most of the cigarettes that you {smoke/smoked}?

I {buy/bought} them myself,

Someone in my home {buys/bought} them for me,

Someone in my home {gives/gave} them to me,

I {take/took} them from someone in my home without permission,

Other people {buy/bought} them for me,

Other people {give/gave} them to me,

I {take/took} them from other people without permission, or

I {take/took} them from a store without permission?

For analysis purposes, these possible responses were grouped into the categories indicated in **Figure 11.5**. Clearly, most (close to 60%) adolescents who ever smoked generally obtained their cigarettes from social sources (“Someone gives them to me”). While there was a decline between 1996 and 1999 in the percentage reporting that they usually bought their cigarettes, the slight increase in 2002 made the difference between 2002 and 1996 nonsignificant. There appeared to be an increase in the relatively small percentage indicating that they take cigarettes without permission.

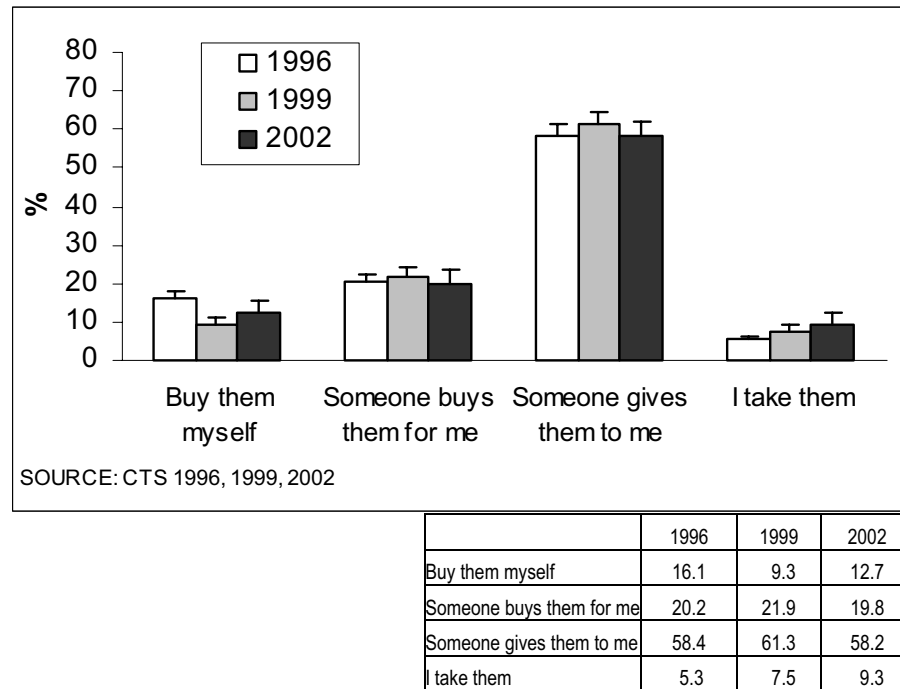
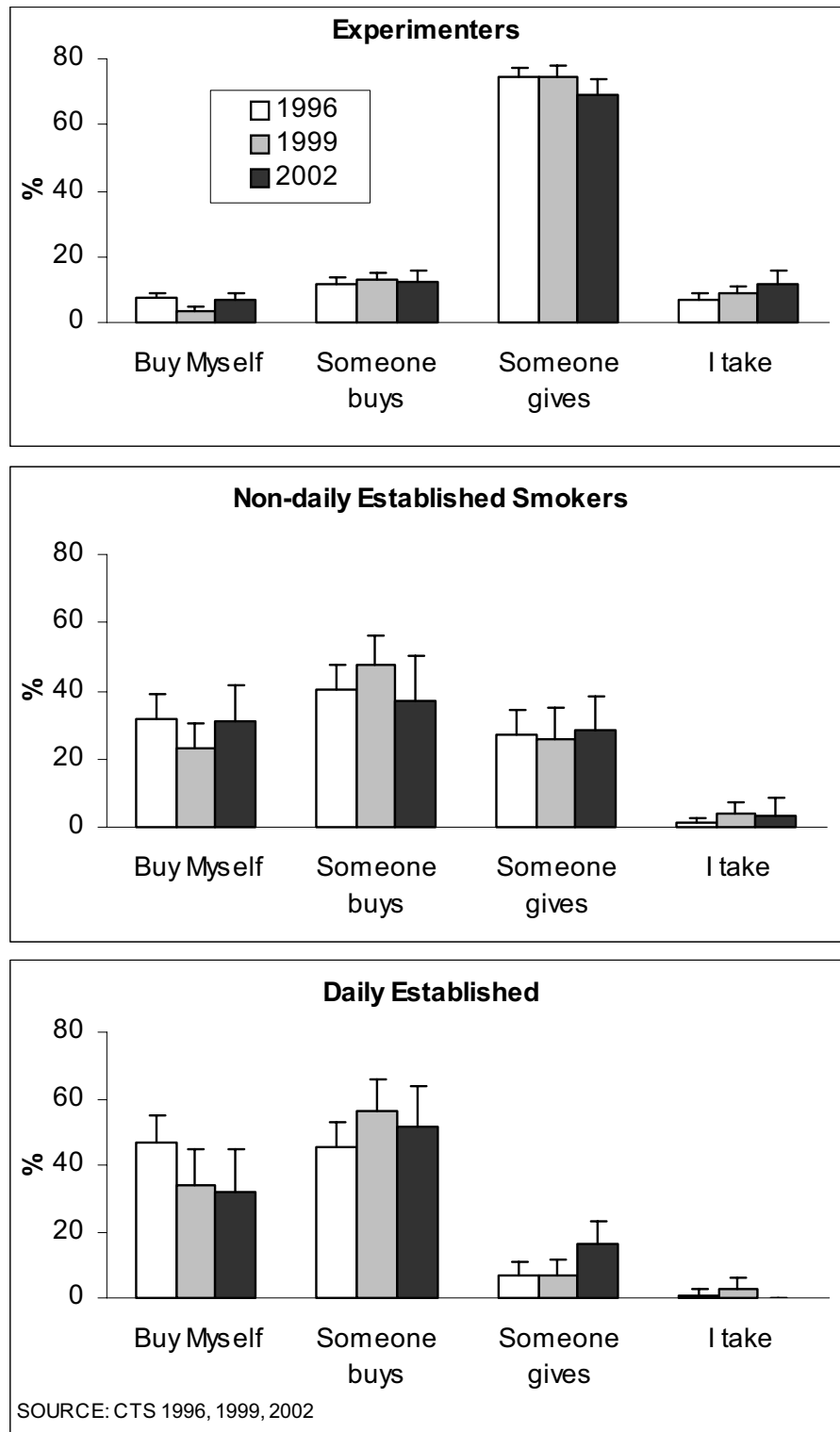
Figure 11.5: Adolescents' Usual Source of Cigarettes

Figure 11.6 shows these data broken down by the adolescents' level of smoking experience. About 70% of experimenters obtained their cigarettes through social sources compared to about 30% of non-daily or 10-20% of daily established smokers. Around 60% of non-daily established smokers usually bought their own cigarettes themselves or through an intermediary, and the overall percentage of buyers was in the neighborhood of 80-90% for daily established smokers. In 1996, daily established smokers were substantially more likely to buy cigarettes themselves than non-daily established smokers, but this difference was not present in 2002. In general, non-daily established smokers were significantly more likely to rely on gifts of cigarettes than daily smokers.

Except for experimenters, there were no significant differences between survey years within smoking experience group. A higher percentage of experimenters in 2002 than in 1999 bought cigarettes themselves, and this percentage was nearly the same as in 1996. There was a slight increase between 1996 and 2002 in the percentage of experimenters taking cigarettes without permission. The data plotted in Figure 11.6 are tabulated in Appendix Table A.11.5.

Figure 11.6: Usual Source of Cigarettes for 15- to 17-Year-Olds.
Data plotted are presented in Appendix Table A.11.1.



Nonconventional Commercial Sources

Beginning in 1999, the CTS introduced a question for adolescent smokers to determine whether they attempt to purchase cigarettes more cheaply from nonconventional sources that avoid state excise taxes or are less likely to require ID. Specifically, all ever smokers were first asked the following:

The next few questions are about how you got your cigarettes in the last year {last year that you smoked}.

In the last year {that you smoked}, did you ever buy them yourself?

Those adolescents who answered affirmatively to the above question were then asked to respond yes or no to the following questions:

Did you ever go out of state or to an Indian reservation to buy cigarettes because they are cheaper?

Did you ever go out of state or to an Indian reservation to buy cigarettes because you would not have to show ID?

Did you ever buy cigarettes over the Internet?

Table 11.1 shows the results for 1999 and 2002. Because so few adolescents reported buying cigarettes in the last year (first row of table), few were asked the second set of questions. However, it is clear that almost no adolescent ever smokers reported using these potentially cheaper sources of cigarettes in the last year. No adolescent in either the 1999 or 2002 samples reported using the Internet to buy cigarettes.

| Table 11.1 | | | | |
|--|-------------|-------------|-------------|-------------|
| Adolescent Cigarette Buyers Who Ever Bought Cigarettes | | | | |
| | 1999 | | 2002 | |
| | N | % | N | % |
| Ever bought cigarettes | 275 | 19.1 (∂2.4) | 160 | 22.1 (∂3.2) |
| Ever bought out of state or at Indian reservation because cigarettes are cheaper? | 29 | 2.2 (∂1.1) | 3 | 0.3 (∂0.4) |
| Ever bought out of state or at Indian reservation because you would not have to show ID? | 14 | 1.1 (∂0.6) | 3 | 0.6 (∂0.7) |
| Did you ever buy cigarettes over the Internet? | 0 | ----- | 0 | ----- |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1999, 2002

Further probing adolescent smokers' commercial sources of cigarettes, the 1999 and 2002 CTS asked those ever smokers who had reported that their usual method of obtaining cigarettes was either to buy themselves or to have others buy for them the following question:

When you bought cigarettes yourself or through someone else, did you usually...

Buy them in California at a regular store,
Buy them in California at an Indian reservation,
Buy them out of state, or
Buy them over the Internet?

In 1999, 92.8±3.4% of adolescent cigarette buyers (n=384) usually bought their cigarettes at regular stores in California, and of usual buyers in 2002 (n=211) this percentage was unchanged, 93.5±3.9%. The numbers reporting their usual source as the other choices were too few for valid estimates.

Regular Commercial Sources

Beginning in 1996, the CTS asked adolescent respondents who reported that they usually bought their own cigarettes whether they *often*, *sometimes*, or *never* bought cigarettes from each the following list of outlet types: *supermarkets, small neighborhood grocery stores, convenience stores or gas stations, discount tobacco stores, other discount stores such as Wal-Mart, liquor stores, vending machines, or some other location*. The discount stores were included for the first time in 1999.

Table 11.2 shows the results for “often” buying cigarettes from these sources for the three survey years. In each year, gas stations were the most popular venue with adolescent cigarette buyers, but liquor stores were a close second, followed by small grocery stores. While vending machines were never much of a usual source of cigarettes for adolescents, there has been a significant decline since 1996 in the percentage of adolescents relying on this source.

| Table 11.2. Types of Stores Where Adolescent Ever Buyers Purchase Cigarettes | | | |
|--|-------------|-------------|-------------|
| | 1996 % | 1999 % | 2002 % |
| Supermarket | 6.3 (±1.9) | 5.9 (±2.8) | 3.9 (±3.2) |
| Small grocery | 25.7 (±4.3) | 26.4 (±5.8) | 25.0 (±7.7) |
| Gas station | 47.0 (±5.2) | 44.1 (±7.2) | 58.3 (±7.5) |
| Tobacco discount stores | | 6.3 (±2.6) | 11.4 (±5.5) |
| Other discount stores | | 2.2 (±2.8) | 1.7 (±2.2) |
| Liquor stores | 44.4 (±5.0) | 41.3 (±7.2) | 45.4 (±8.5) |
| Drug stores | 4.9 (±2.4) | 4.7 (±3.0) | 8.7 (±6.1) |
| Vending machine | 6.3 (±2.5) | 2.2 (±2.3) | 1.1 (±1.5) |
| Other | 7.9 (±2.9) | 10.0 (±4.5) | 4.9 (±4.3) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
 SOURCE: CTS 1996, 1999, 2002

These results are consistent with reports from the California Department of Health Services, who conduct random compliance checks of retail outlets’ willingness to sell tobacco to minors each year. CDHS has found that gas stations and other small stores are consistently more likely to sell cigarettes to minors than supermarkets (CDHS, 2000). For instance, in 1999 illegal sales for small outlets were in the neighborhood of 12%, compared to about 5% for supermarkets.

The data presented in this chapter indicate that adolescents who buy their cigarettes continue to purchase their cigarettes from regular commercial sources, and experimenters continued to rely on social sources for the cigarettes they smoke.

3. Enforcement of Laws Around Illegal Sales of Tobacco to Minors

Central to enforcement of access laws is the request for ID from young buyers. By law, clerks are supposed to check ID from anyone who looks to be under 18 years of age. However, there has been concern that some adolescents have obtained a driver's license with a falsified year of birth to facilitate purchase of alcohol and/or cigarettes, so even if ID is checked, it will not prevent purchase by underage buyers. Further, some recent research indicates that while clerks may ask for ID, they may not inspect it sufficiently closely to determine whether the buyer is of legal age, so that underage buyers asked for ID actually were more successful in purchasing cigarettes than buyers not asked (Landrine et al., 2001; Levinson et al., 2002).

The 2002 CTS asked the following question of adolescents who reported that they usually bought their cigarettes for themselves:

The last time you wanted to buy cigarettes, were you asked to show proof of age?

Only 24.5±7.8% of the usual buyers (n=38) answered *yes* to this question. While the sample size is small, this result suggests that more needs to be done to ensure that the law-requiring inspection of ID is followed. Much of the responsibility for ensuring that clerks check ID was assumed by the tobacco industry with its "It's the Law" program. However, research has shown this program to be largely ineffective (DiFranza et al., 1996; Cowling et al., 2000).

4. Summary

Regardless of smoking experience, among 12- to 14-year-olds, the perceived ease of buying a few cigarettes continued its declining trend since 1996, when 54.5±1.6% agreed that it would be easy to buy a few cigarettes, compared to 35.0±1.9% in 1999 and 23.8±1.7% in 2002. Social sources may be less readily available to youth than in previous years due to declines in adolescent smoking prevalence. Of concern, and at odds with compliance check data, is that 15- to 17-year-old adolescent smokers' perceived ease of purchasing a pack of cigarettes did not change significantly between 1999 and 2002.

Adolescent never smokers' perception that cigarettes are easy to get remain at a lower level in 2002 compared to 1996. In 2002, 45.9±1.9% of adolescent never smokers said cigarettes were easy to get. This level was 48.0±1.5% in 1999, but significantly higher in 1996, 57.2±1.4%. Still, the result that nearly half of never smokers in 2002 thought cigarettes easy to get indicates room for tobacco control measures to improve this perception.

Adolescent never smokers reported fewer offers of cigarettes in 2002 ($31.5 \pm 1.4\%$) compared to 1999 ($37.0 \pm 1.7\%$), a factor decline of 14.9%. While it might be expected that committed never smokers would be less likely to be offered a cigarette than susceptible never smokers, some of whom might actually be looking for such an offer, the percentages being offered in these groups were nearly the same in 1996 and 1999. However, in 2002, offers reported by committed never smokers declined by a factor of 24.5%. Nevertheless, further reducing such offers needs to be a focus of tobacco control efforts.

Overall, most adolescent smokers continued to obtain their cigarettes from social sources. Nearly 60% ($58.2 \pm 4.1\%$) of ever smokers reported their usual source of cigarettes to be “someone gives them to me.” However, whether adolescents rely on social sources for their cigarettes or buy them depends on their smoking level. In 2002, nearly 70% ($69.2 \pm 4.8\%$) of experimenters usually obtained their cigarettes from social sources, compared to one-sixth ($16.4 \pm 6.4\%$) of daily established smokers, the remainder of whom usually bought their cigarettes themselves ($32.0 \pm 13.1\%$), or through an intermediary ($51.7 \pm 12.1\%$).

Based on the CTS data, concern within the tobacco control community regarding youth access to tobacco via alternative commercial sources has proven unfounded. No adolescent who bought cigarettes themselves in the past year {they smoked} reported ever using such sources (e.g., the Internet).

Those youth who purchase their own cigarettes continue to do so primarily at gas stations, liquor stores, and small grocery stores. The 2002 CTS indicates that only $24.5 \pm 7.8\%$ of youth were asked for ID at their most recent purchase attempt. This finding may point to the need to concentrate access reduction efforts on smaller outlets, and to assist merchants in training their staff in asking for and interpreting proof of age on tobacco purchases.

Chapter

11

APPENDIX

Limiting Youth Access to Cigarettes

1. Adolescents who think cigarettes are easy to get

Table A.11.1 shows the percentage of adolescent never smokers who perceived that cigarettes were easy to obtain within demographic subgroups. The decline between 1999 and 2002 was not significant overall or for any demographic subgroup. In all years, older never smokers were significantly more likely than younger ones to think that cigarettes were easy to get. There were few other demographic differences of interest in any year.

| Table A. 11.1 Adolescent Never Smokers Who Thought It Would Be Easy to Get Cigarettes If They Wanted Them | | | | | |
|---|--------------|--------------|-------------|--------------|-------------|
| | 1990 % | 1993 % | 1996 % | 1999 % | 2002 % |
| Overall | 57.9 (22.2) | 56.9 (21.9) | 57.2 (21.4) | 48.0 (21.5) | 45.9 (21.9) |
| Age | | | | | |
| 12-13 | 37.7 (24.3) | 36.1 (23.4) | 36.6 (22.6) | 25.4 (21.8) | 23.4 (22.6) |
| 14-15 | 64.8 (23.6) | 67.6 (23.0) | 66.1 (23.1) | 53.1 (23.4) | 52.8 (23.1) |
| 16-17 | 86.8 (23.1) | 84.1 (23.6) | 81.9 (23.1) | 79.7 (23.2) | 73.4 (23.1) |
| Gender | | | | | |
| Male | 61.2 (23.2) | 57.4 (22.8) | 58.0 (22.0) | 48.7 (22.3) | 44.0 (22.4) |
| Female | 54.8 (23.0) | 56.5 (23.0) | 56.3 (22.2) | 47.2 (22.6) | 47.8 (22.5) |
| Race/Ethnicity | | | | | |
| African American | 56.6 (29.9) | 62.1 (27.7) | 59.3 (25.6) | 48.9 (24.7) | 45.5 (26.5) |
| Asian/PI | 51.5 (29.2) | 48.0 (26.9) | 53.0 (25.3) | 44.4 (26.5) | 41.2 (25.0) |
| Hispanic | 57.2 (23.9) | 53.0 (24.5) | 50.0 (22.5) | 43.7 (23.2) | 42.5 (23.0) |
| Non-Hispanic White | 59.7 (22.0) | 60.5 (22.1) | 63.8 (22.1) | 53.0 (22.5) | 51.7 (22.6) |
| Other | 66.4 (216.2) | 55.8 (219.1) | 50.3 (29.8) | 48.8 (212.5) | 40.7 (26.6) |
| School Performance | | | | | |
| Much better than average | 61.7 (25.6) | 56.9 (24.7) | 61.3 (23.0) | 50.4 (23.2) | 45.9 (23.3) |
| Better than average | 58.0 (23.8) | 58.6 (23.0) | 59.5 (22.4) | 49.5 (22.9) | 48.8 (22.7) |
| Average and below | 55.7 (23.8) | 55.3 (23.6) | 51.3 (22.4) | 45.1 (22.7) | 42.7 (23.2) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1993, 1996, 1999, 2002

Table A.11.2 shows the demographic breakout of adolescents (all smoking status groups) who thought it would be easy to buy a few cigarettes. There have been significant decreases in perceived ease of purchase across all age groups and across genders. All racial/ethnic groups except the Asian/PI group showed significant declines between 1999 and 2002, as did all school performance groups. Older adolescents were more likely than younger ones to think that it is easy to buy a few cigarettes in each year, but there were no other significant differences in groups for demographic categories within year.

| Table A.11.2 Adolescents Who Think It Is Easy to Buy a Few Cigarettes | | | | | |
|--|-------------|-------------|-------------|-----------------|-----------|
| | 1996 % | 1999 % | 2002 % | Factor Decrease | |
| | | | | 1996-1999 | 1999-2002 |
| Overall | 69.1 (±1.2) | 47.4 (±1.3) | 36.1 (±1.3) | -31.4 | -24.0 |
| Age | | | | | |
| 12-14 | 54.5 (±1.6) | 35.0 (±1.9) | 23.8 (±1.7) | -35.7 | -32.1 |
| 15-17 | 83.3 (±1.5) | 60.2 (±2.2) | 49.4 (±2.2) | -28.1 | -18.1 |
| Gender | | | | | |
| Male | 68.8 (±1.8) | 49.9 (±1.7) | 36.7 (±1.8) | -27.5 | -26.5 |
| Female | 69.5 (±1.6) | 44.8 (±2.0) | 35.5 (±2.0) | -35.5 | -20.9 |
| Race/Ethnicity | | | | | |
| African-American | 69.1 (±4.2) | 51.3 (±5.7) | 35.4 (±5.6) | -25.7 | -31.1 |
| Asian/PI | 64.0 (±3.0) | 42.8 (±4.3) | 35.0 (±3.9) | -33.1 | -18.2 |
| Hispanic | 64.6 (±2.6) | 46.1 (±2.4) | 34.9 (±2.3) | -28.7 | -24.3 |
| Non-Hispanic White | 73.5 (±1.6) | 49.3 (±2.1) | 37.6 (±1.9) | -33.0 | -23.6 |
| School Performance | | | | | |
| Much better than average | 65.6 (±2.6) | 47.3 (±3.0) | 34.6 (±2.7) | -28.0 | -26.8 |
| Better than average | 71.6 (±2.1) | 47.5 (±2.6) | 36.2 (±2.4) | -33.6 | -23.8 |
| Average or below | 68.9 (±2.0) | 47.5 (±2.1) | 36.9 (±2.6) | -31.0 | -22.4 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1996, 1999, 2002

Table A.11.3 presents the results (all smoking status groups) for demographic groups of adolescents who thought it would be easy to buy a pack of cigarettes. There were large and significant declines in all demographic categories between 1996 and 1999. There were further significant declines in all groups between 1999 and 2002, except for African Americans, Hispanics, and those with average or below school performance. Again, the only within year significant differences between groups for demographic categories was for younger compared to older age groups.

| Table A.11.3 | | | | | |
|---|-------------------|-------------------|-------------------|------------------------|------------------|
| Adolescents Who Think It Is Easy to Buy a Pack | | | | | |
| | 1996 % | 1999 % | 2002 % | Factor Decrease | |
| | | | | 1996-1999 | 1999-2002 |
| Overall | 51.5 (∂1.4) | 26.7 (∂1.3) | 21.7 (∂1.0) | -48.2 | -18.8 |
| Age | | | | | |
| 12-14 | 33.3 (∂2.2) | 13.1 (∂1.5) | 10.1 (∂1.4) | -60.6 | -22.8 |
| 15-17 | 69.8 (∂1.9) | 40.8 (∂1.9) | 34.2 (∂1.9) | -41.7 | -16.2 |
| Gender | | | | | |
| Male | 52.4 (∂1.9) | 28.0 (∂2.0) | 22.1 (∂1.6) | -46.6 | -21.2 |
| Female | 50.6 (∂1.8) | 25.4 (∂1.8) | 21.3 (∂1.6) | -49.9 | -15.9 |
| Race/Ethnicity | | | | | |
| African-American | 55.3 (∂4.9) | 28.2 (∂4.8) | 22.7 (∂4.7) | -49.0 | -19.5 |
| Asian/PI | 43.1 (∂4.6) | 26.8 (∂4.7) | 18.2 (∂3.4) | -37.9 | -32.1 |
| Hispanic | 46.2 (∂2.8) | 24.9 (∂2.1) | 21.2 (∂2.0) | -46.0 | -15.1 |
| Non-Hispanic White | 56.5 (∂1.9) | 28.1 (∂1.8) | 23.3 (∂1.6) | -50.3 | -16.9 |
| School Performance | | | | | |
| Much better than average | 49.1 (∂2.6) | 27.4 (∂3.2) | 20.6 (∂2.1) | -44.1 | -24.9 |
| Better than average | 52.7 (∂2.3) | 26.0 (∂1.9) | 20.3 (∂1.7) | -48.9 | -24.7 |
| Average or below | 51.9 (∂2.2) | 26.2 (∂2.3) | 23.7 (∂1.7) | -49.5 | -9.6 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1996, 1999, 2002

2. Adolescent never smokers offered a cigarette

Table A.11.4 shows the percentages of adolescent never smokers offered a cigarette within demographic categories. The decline from 1999 to 2002 was significant overall, for 12- to 13-year-olds and for 14- to 15-year-olds, in both sexes, for Non-Hispanic Whites, and among those with average or below average school performance. In all years, older adolescents were significantly more likely than younger ones to be offered cigarettes, and in 1996 and 1999 boys were significantly more likely than girls to receive a cigarette offer. Asian/PI adolescents were significantly less likely to be offered a cigarette than Hispanics and African Americans. Finally, those with much better than average school performance were less likely to be offered a cigarette than those with average or below school performance.

| Table A.11.4 Never Smokers Who Answered "Yes" to "Have You Ever Been Offered a Cigarette?" | | | |
|---|-------------------------|-------------------------|-------------------------|
| | 1996 % | 1999 % | 2002 % |
| Overall | 37.4 (±1.8) | 37.0 (±1.7) | 31.5 (±1.4) |
| Age | | | |
| 12-13 | 21.5 (±2.0) | 20.8 (±2.3) | 16.0 (±2.0) |
| 14-15 | 44.6 (±2.9) | 41.7 (±3.0) | 34.7 (±2.9) |
| 16-17 | 56.3 (±3.4) | 58.5 (±3.3) | 52.6 (±3.8) |
| Gender | | | |
| Male | 40.1 (±2.2) | 39.1 (±2.2) | 33.1 (±1.9) |
| Female | 34.7 (±2.4) | 34.8 (±2.5) | 29.8 (±2.3) |
| Race/Ethnicity | | | |
| African American | 41.1 (±6.3) | 41.1 (±5.5) | 34.0 (±5.4) |
| Asian/PI | 27.5 (±4.6) | 28.4 (±5.1) | 22.4 (±5.1) |
| Hispanic | 42.1 (±3.3) | 41.7 (±2.8) | 36.4 (±3.3) |
| Non-Hispanic White | 36.2 (±2.2) | 34.5 (±2.6) | 29.1 (±2.1) |
| Other | 35.8 (±9.8) | 42.9 (±16.3) | 36.4 (±5.5) |
| School Performance | | | |
| Much better than average | 33.5 (±2.9) | 30.2 (±3.4) | 24.4 (±2.6) |
| Better than average | 38.0 (±2.5) | 34.3 (±2.5) | 31.4 (±2.3) |
| Average and below | 39.9 (±2.9) | 43.7 (±2.9) | 36.7 (±2.7) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1996, 1999, 2002

3. Usual Source of Cigarettes – Data

Table A.11.5 presents the data plotted in Figure 11.6. See the main body of the chapter for a discussion.

| Table A.11.5 Usual Source of Cigarettes | | | |
|--|-------------|--------------|--------------|
| | 1996 % | 1999 % | 2002 % |
| Buy Myself | | | |
| Experimenters | 7.3 (∂1.6) | 3.7 (∂1.4) | 6.9 (∂2.1) |
| Occasional Established | 31.6 (∂7.7) | 23.2 (∂7.0) | 30.8 (∂11.1) |
| Daily Established | 46.9 (∂8.3) | 34.2 (∂10.8) | 32.0 (∂13.1) |
| Someone Else Buys for Me | | | |
| Experimenters | 11.6 (∂2.0) | 13.1 (∂2.1) | 12.3 (∂3.6) |
| Occasional Established | 40.1 (∂7.2) | 47.4 (∂9.1) | 37.1 (∂13.1) |
| Daily Established | 45.6 (∂7.3) | 56.3 (∂9.8) | 51.7 (∂12.1) |
| Others Give | | | |
| Experimenters | 74.3 (∂3.1) | 74.4 (∂3.6) | 69.2 (∂4.8) |
| Occasional Established | 26.9 (∂7.3) | 25.7 (∂9.4) | 28.6 (∂9.7) |
| Daily Established | 6.5 (∂4.0) | 7.1 (∂4.5) | 16.4 (∂6.4) |
| I Take | | | |
| Experimenters | 6.8 (∂1.7) | 8.8 (∂2.1) | 11.6 (∂3.8) |
| Occasional Established | 1.4 (∂1.3) | 3.8 (∂3.8) | 3.5 (∂4.9) |
| Daily Established | 1.0 (∂1.9) | 2.5 (∂3.4) | 0.0 (∂0.0) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1996, 1999, 2002

GLOSSARY

Adolescents

Committed never smoker – a *never smoker* who answers “definitely not” in answer to three questions: trying a cigarette soon, accepting a cigarette if offered by a best friend, and likelihood of smoking in the next year.

Current established smoker – has smoked a cigarette on at least one day in the past month and has smoked at least 100 cigarettes in his or her lifetime.

Current smoker – has smoked a cigarette on at least one day in the past month.

Daily smoker – answers 25 or more days to the question about how many days in the last month he or she smoked.

Established smoker – has smoked at least 100 cigarettes in his or her lifetime.

Experimenter – has smoked a cigarette (excludes *puffers*), but has not smoked at least 100 cigarettes in his or her lifetime.

Never smoker – has never smoked or even puffed on a cigarette.

Occasional smoker – answers less than 25 days to the question about how many days in the last month he or she smoked.

Puffer – someone who has not smoked a cigarette, but admits to puffing on one.

Susceptible never smoker – a *never smoker* who fails to answer “definitely not” in answer to all three questions about trying a cigarette soon, accepting a cigarette if offered by a best friend, and their likelihood of smoking in the next year.

REFERENCES

- Altman DG, Wheelis AY, McFarlane M, Lee H, Fortmann SP. The relationship between tobacco access and use among adolescents: a four community study. *Soc Sci Med.* **1999**;48:759-775.
- California Department of Health Service (CDHS). More California retailers selling tobacco to kids. Press Release No. 25-00. World Wide Web: <http://www.dhs.ca.gov/opa/prsrels/2000/25-00.htm> (accessed May 8, 2003).
- Castrucci BC, Gerlach KK, Kaufman NJ, Orleans CT. Adolescents' acquisition of cigarettes through noncommercial sources. *J Adolesc Health.* **2002**;31:322-326.
- Cowling DW, Robins DM. Rate of illegal tobacco sales to minors varies by sign type in California. *Am J Public Health.* **2000**;90:1792-1793.
- DiFranza JR. Youth access: the baby and the bath water. *Tob Control.* **2000**;9:120-121.
- DiFranza JR, Peck RM, Radecki TE, Savageau JA. What is the potential cost-effectiveness of enforcing a prohibition on the sale of tobacco to minors? *Prev Med.* **2001**;32:168-174.
- DiFranza JR, Coleman M. Sources of tobacco for youth in communities with strong enforcement of youth access laws. *Tob Control.* **2001**;10:323-328.
- DiFranza JR. Is it time to abandon youth access programmes? *Tob Control.* **2002**;11:282.
- DiFranza JR, Savageau JA, Aisquith BE. Youth access to tobacco: the effects of age, gender, vending machine locks, and "It's the Law" programs. *Am J Public Health.* **1996**;86:211-224.
- Emery S, Gilpin EA, White MM, Pierce JP. How adolescents get their cigarettes: implications for policies on price and access. *J Natl Cancer Inst.* **1999**;91:184-186.
- Fichtenberg CM, Glantz SA. Youth access interventions do not affect youth smoking. *Pediatrics.* **2002**;109:1088-1092.
- Forster JL, Wolfson M, Murray DM, Wagenaar AC, Claxton AJ. Perceived and measured availability of tobacco to youth in 14 Minnesota communities: The TPOP Study. *Am J Prev Med.* **1997**;13:167-174.
- Gilpin EA, Lee L, Pierce JP. Does adolescent perception of difficulty in getting cigarettes deter experimentation? In press, *Prev Med.*, **2004**.
- Glantz S. Preventing tobacco use—the youth access trap. *Am J Public Health.* **1996**;86:156-158.

- Landrine H, Klonoff EA, Lang D, Alcaraz R. Use of identification cards by underage youth to purchase cigarettes. *JAMA*. **2001**;285:2329.
- Landrine H, Klonoff EA, Reina-Patton A. Minors' access to tobacco before and after the California STAKE Act. *Tob Control*. **2000**;9(Suppl II):ii15-ii17.
- Levinson AH, Hendershott S, Byers TE. The ID effect on youth access to cigarettes. *Tob Control*. **2002**;11:296-299.
- Ling PM, Landman A, Glantz SA. It is time to abandon youth access tobacco programmes. *Tob Control*. **2002**;11:3-6.
- Rapaport L. *Cigarette Sales to Teens Fall. The State's Annual Sting Operation Aimed at Retailers Shows a Significant Decline, the First in Four Years.* Sacramento Bee. Friday, August 1, **2003**.
- Rigotti, NA, DiFranza JR, Chang Y, Tisdale T, Kemp B, Singer D. The effect of enforcing tobacco sales laws on adolescents' access to tobacco and smoking behavior. *New Eng J Med*. **1997**;337:1044-1051.
- Substance Abuse and Mental Health Services Administration (SAMHSA). Tobacco regulation for substance abuse prevention and treatment block grants: final rule. *Fed Regist*. **1996**;61(13):1492-509.
- Tobacco Eductaion and Research Oversight Committee (TEROC). Toward a Tobacco-Free California. Master Plan January **2003**.

TOBACCO CONTROL SUCCESSES IN CALIFORNIA:
A FOCUS ON YOUNG PEOPLE

Chapter 12

Smoke-Free Schools: Policies and Compliance

| | |
|---|--------------|
| KEY FINDINGS | 12-2 |
| Introduction | 12-3 |
| 1. Student Compliance with Smoke-free School Policies | 12-4 |
| Obeying the Rule Not to Smoke | 12-4 |
| How Many Students Witnessed Smoking at School? | 12-5 |
| 2. Trends in Students' Perceptions of Teachers' Smoking in School..... | 12-6 |
| 3. Trends in Student Preferences for Smoke-free School Grounds | 12-7 |
| Characteristics of Adolescent Current Smokers Who Favor Smoke-free School Grounds..... | 12-8 |
| How Do Adolescent Current Smokers View the Effectiveness of School No-Smoking Policies? | 12-9 |
| 4. Trends in Smoking Health-Risk Classes at Schools: 1990-2002 | 12-10 |
| Adolescent Perception of Health-Class Effectiveness in Deterring Smoking | 12-11 |
| 5. Summary..... | 12-12 |
| APPENDIX..... | 12-14 |
| 1. Student Compliance with Smoke-free School Policies | 12-14 |
| Obeying the Rule Not to Smoke | 12-14 |
| How Many Students Witnessed Smoking in School? | 12-15 |
| 2. Trends in Perceptions of Teachers' Smoking..... | 12-16 |
| 3. Trends in Student Preferences for Smoke-free School Grounds: 1993-2002 | 12-17 |
| 4. Trends in Smoking Health-Risk Classes at Schools 1990-1999 | 12-18 |
| Adolescent Perception of Health Class Effectiveness in Deterring Smoking | 12-19 |
| GLOSSARY | 12-20 |
| REFERENCES | 12-21 |

Chapter

12

KEY FINDINGS

Smoke Free Schools: Policies and Compliance

- 1) **Student compliance with school no-smoking rules increased** to 71.5% in 2002, up significantly from 66.7% in 1999 and 40.7% in 1996.
- 2) **Smoking on school property is decreasing.** In 2002, only one-fifth of students reported seeing someone smoking on school property within the last 2 weeks (20.8%), compared to over one-fourth in 1999 (26.3%), and over one-third in 1996 (36.0%).
- 3) **Students' perception that teachers smoke on school grounds has continued to decline.** In 1996, 19.4% of students perceived that teachers smoked at school, which declined to 15.7% in 1999 and further to 13.0% by 2002.
- 4) **Public schools appear to have greater teacher support for smoke-free school grounds compared to private schools.** The percentage of private school students who reported seeing teachers smoke on school grounds was over twice that of public school students: 44.2% vs. 16.7% in 1996, 29.2% vs. 14.4% in 1999, and 26.4% vs. 11.7% in 2002.
- 5) **The vast majority of all students supported a complete ban on smoking on school grounds** (90.5% in 2002). Even 69.1% of current smokers expressed this preference in 2002, up from 64.4% in 1999 and 55.8% in 1996.
- 6) **Support of smoke-free school grounds was associated with several characteristics of adolescent current smokers.** If they perceived that teachers did not smoke at school or that most or all student smokers obeyed the school no-smoking rule, they were more likely to favor school smoking bans.
- 7) **Most students recalled having had a class on the health risks of smoking** (80.1% in 2002). However, significantly more public school students (80.9%) recalled having a smoking prevention curriculum compared with private school students (74.5%) in 2002.
- 8) **The percentage of students who believed that classes on the health risks of smoking were effective has increased steadily** (from 43.1% in 1996 to 52.3 to 54.4% in 2002). This trend was present even in students who had ever smoked a cigarette.

Smoke-free Schools: Policies and Compliance

Introduction

Efforts to prevent smoking in schools have the potential to influence adolescent smoking in several ways. The implementation and enforcement of smoke-free school policies limits the opportunity for teens to smoke. A study from Australia indicates that many adult smokers reported starting to smoke regularly at school during adolescence (Hill & Borland, 1991). Further, the existence and enforcement of these policies promote norms against smoking as an acceptable behavior for everyone, including teachers who are important role models for adolescents. Based on evidence indicating that school staff influence student smoking, many states, including Delaware, Hawaii, New York and Florida have become increasingly interested in encouraging their school districts to ban smoking in schools. Finally, anti-smoking curricula can provide vital information on the health dangers and the addictive nature of cigarettes.

Since 1952, the California State Education Code has banned all student smoking on the grounds of junior high and middle schools (Pentz et al., 1989). In 1991, AB-99 required that all schools become tobacco-free by July 1, 1996 in order to qualify for anti-tobacco program funding. Legislation passed in 1994 moved the implementation date of the AB-99 school policies ahead by a year, to July 1, 1995. This chapter examines the extent to which students believe that their peers and teachers comply with the school smoking ban, students' preferences for smoke-free school grounds, and the influences that affect student support for school smoking bans.

For decades, schools have played a central role in smoking prevention (USDHHS, 1989; Hansen, 1992; USDHHS, 1994). It is recognized that school-based efforts have the most chance of success in the setting of comprehensive community-based tobacco control programs (USDHHS, 2000). Since 1995, the state of California has required school-based anti-tobacco education for grades 4-8. The Tobacco Use Prevention Education (TUPE) program, an integral component of the California Tobacco Control Program, provides entitlement funds to public schools for tobacco education in grades 4-8, and competitive grants for tobacco education in grades 9-12 (Fishbein et al., 1998). Thus, by 2002, nearly all adolescents should have been exposed to a smoking prevention lesson in school. In this chapter, students' recall and opinions of such lessons are described.

Section 1 analyzes trends in student compliance with school smoking regulations. Section 2 examines trends in perception of teachers' smoking. Section 3 analyzes trends in students' preferences for smoke-free school grounds and factors affecting such preferences. Section 4 explores students' exposure to anti-smoking curricula and the perceived effectiveness of such curricula. Section 5 summarizes the chapter.

1. Student Compliance with Smoke-free School Policies

Obeying the Rule Not to Smoke

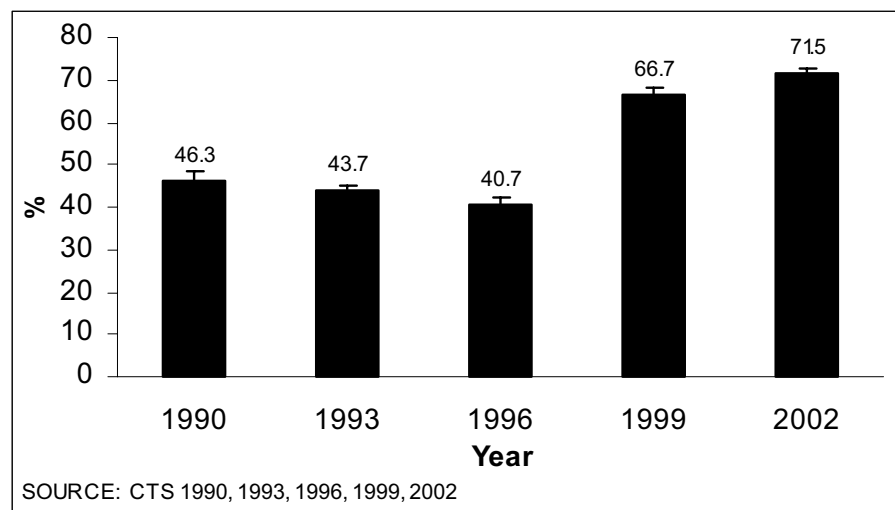
If tobacco use policies are not consistently enforced in schools, they can convey a mixed message to students (Bowen et al., 1995). However, Pentz et al. (1989) showed that, when consistently enforced and coupled with cessation education, school smoking policies are associated with decreased smoking prevalence among adolescents. To assess compliance with smoke-free policies at schools, the 1990, 1993, 1996, 1999, and 2002 California Tobacco Surveys (CTS) asked adolescents the following question:

How many students who smoke obey the rule prohibiting smoking on school property?

Compliance with school smoking policies increased by a factor of 76% between 1996 and 2002.

Figure 12.1 shows that after a slight but steady decline through 1996, the percentage of adolescents who perceived that most or all students obeyed the rule not to smoke on school property increased significantly. By 2002, almost three-fourths of students perceived that the school smoking ban was generally obeyed. This represents a turnaround by a factor of 75.7% since 1996. The lower level in 1996 was attributed to the possible increased awareness of the rule and that it was being violated in high schools since the policy was relatively new. It appears that by 1999, the rule had gained much wider acceptance and continued to do so by 2002.

Figure 12.1: Most or All Students Who Smoke Obey the Rule Not to Smoke on School Property



Appendix Table A12.1 presents percentages of adolescents who perceive that students who smoke obey the rule prohibiting smoking on school grounds, analyzed by demographics and school performance.

How Many Students Witnessed Smoking at School?

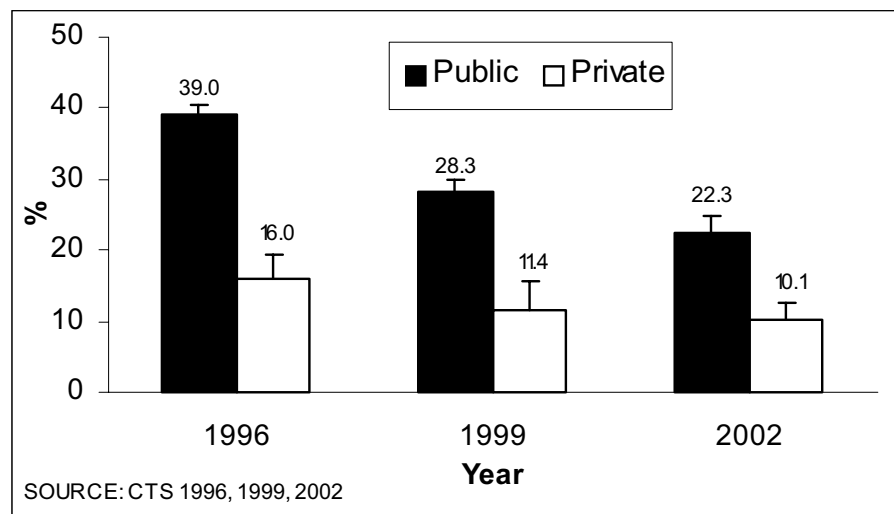
In earlier years of the CTS, students were asked separate questions about whether they had seen students or teachers smoking at school. The 1996, 1999, and 2002 CTS were slightly modified to ask students the following single question to ascertain the level of compliance to the new law:

During the past 2 weeks have you seen anyone smoking on school property?

In 2002, fewer adolescents had witnessed someone smoking at school in the past 2 weeks compared to 1999 (a 21% factor decrease).

In 1996, over one-third (36.0 \pm 1.5%) of students had seen anyone smoking at school, but this had declined to just over one-quarter (26.3 \pm 1.7%) by 1999 and further declined to just over one-fifth (20.8 \pm 1.2%) by 2002, which is consistent with the increased perception that the rule is obeyed. Answers to this question varied widely depending on whether students attended private or public school. **Figure 12.2** shows that in 2002, only 10.1 \pm 2.4% of private and religious school students reported they had seen smoking at school, while 22.3 \pm 1.4% of public school students answered “yes” to this question, which is a significant difference.

Figure 12.2: Students Who Have Seen Anyone Smoking at School in the Past 2 Weeks



Appendix Table A.12.2 presents percentages of adolescents who have seen anyone smoking on school grounds in the past 2 weeks, analyzed by demographics and school performance.

2. Trends in Students' Perceptions of Teachers' Smoking in School

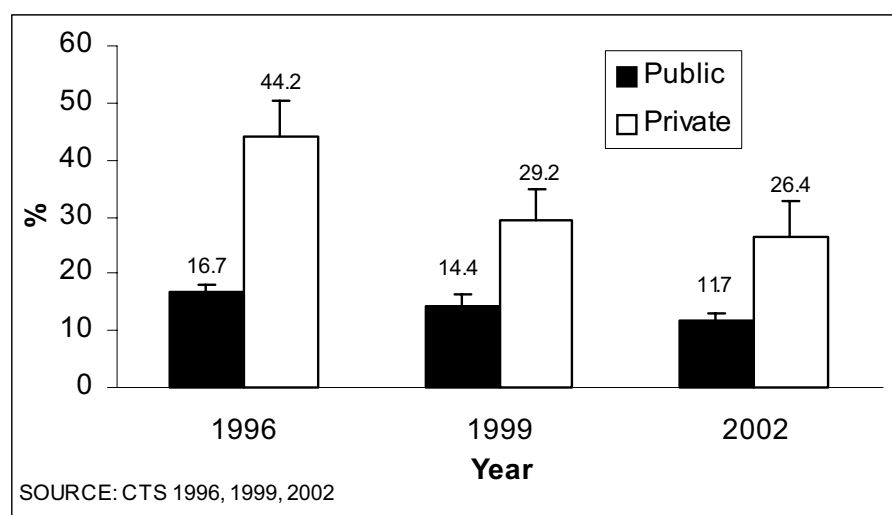
A teacher's influence on students extends far beyond the classroom knowledge they convey. Earlier research has established a link between teachers' smoking at school and adolescent smoking uptake (Allen et al., 1991, 1992). In the 1996, 1999, and 2002 CTS, all students were asked the following question:

As far as you know, do any teachers smoke on your school's grounds?

The percentage of students who reported that any teachers smoked on school grounds declined by a factor of 33% between 1996 and 2002.

Although this question cannot accurately assess the prevalence of smoking among teachers, it can provide information regarding teachers' smoking behavior in a context that is very influential to students. Therefore, adolescents' perceptions are very important. **Figure 12.3** illustrates that the perception that teachers smoke on school grounds has declined significantly since 1996. For all students, this perception decreased from $19.4 \pm 1.4\%$ in 1996 to $15.7 \pm 1.8\%$ in 1999, or by a factor of 19%, and further decreased by an additional factor of 17% by 2002, to $13.0 \pm 1.3\%$.

Figure 12.3: Students Perceiving That Teachers Smoke at School



Perception of teachers' smoking differed significantly between private and public school students. In 1996, nearly 3 times as many private school students reported teachers smoking on school grounds compared to public school students. This ratio decreased so that by 1999 only about twice as many students in private schools reported teachers smoking in school relative to public school students. This difference remained relatively constant in 2002. Since the state did not appropriate funds for school-based TUPE interventions in private schools, the lack of specific training for teachers in such schools may have led to less compliance with smoke-free school policies.

Appendix Table A.12.3 presents percentages of adolescents who perceived that teachers smoked on school grounds, analyzed by demographics, school performance, and school type.

3. Trends in Student Preferences for Smoke-free School Grounds

Adolescents often confront the strict enforcement of any type of restriction with resistance and noncompliance. To test students' reactions to smoke-free policies, the 1993, 1996, 1999, and 2002 CTS asked adolescents the following question:

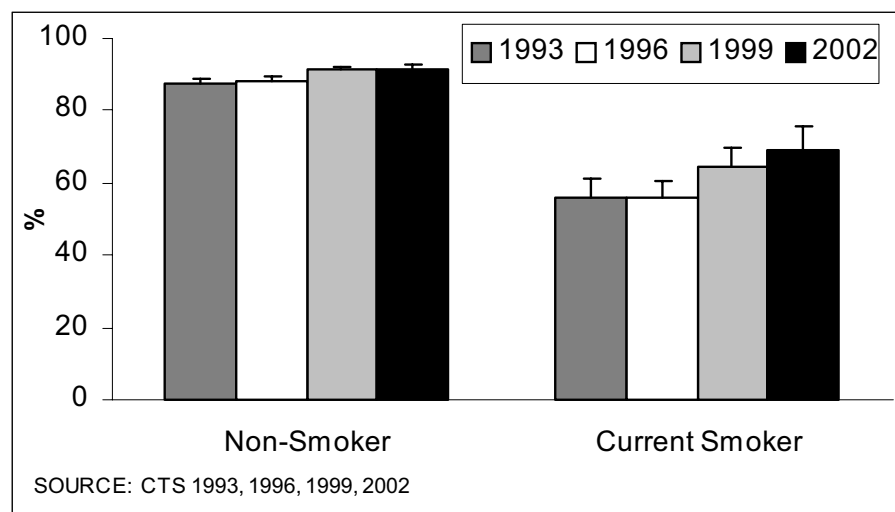
Do you think that all smoking by anyone should be banned on school grounds at all times, including meetings and sporting events?

The vast majority of all students (90.5%), and over two-thirds of smokers (69.1%) supported a complete ban on smoking on school grounds in 2002.

This question deliberately used the word “ban” to maximize the number of adolescents who would disagree and thereby provide a conservative estimate of student support for school smoking policies. Despite the wording, in 2002 an overwhelming majority of students (90.5±0.9%) supported a policy prohibiting smoking at any time on school grounds, up from about 84% in both 1993 and 1996, and about equal with 1999.

Smoke-free school policies interfere with the ability of adolescent smokers to smoke during school hours. However, even current smokers (any smoking in the past 30 days) showed impressive changes in support for the smoke-free policy between 1996 and 2002. **Figure 12.4** illustrates that while nonsmokers have overwhelmingly favored smoke-free school grounds since 1993, support for smoke-free school grounds among current smokers increased steadily from 1996 to 2002. In 1996, a slight majority of smokers (55.8±4.7%) favored a ban on smoking on school grounds, and by 2002 over two-thirds did so (69.1±6.9%). Despite no-smoking policies being in place since the 1950s for junior and middle schools (Pentz et al., 1989), and by 1995 for all schools to qualify for anti-tobacco program funding, the recent increase in support for smoke-free schools among current smokers suggests that the California Tobacco Control Program has positively influenced smoking social norms in schools.

Figure 12.4: Belief That Smoking Should Be Banned on School Grounds by Smoking Status



| | Nonsmokers | Current Smokers |
|------|------------|-----------------|
| 1993 | 87.4 | 55.7 |
| 1996 | 88.2 | 55.8 |
| 1999 | 91.2 | 64.4 |
| 2002 | 91.6 | 69.1 |

Appendix Table A.12.4 presents percentages of adolescents who preferred that smoking be banned on school grounds, analyzed by demographics and school performance.

Characteristics of Adolescent Current Smokers Who Favor Smoke-free School Grounds

That adolescent current smokers have increasingly favored school smoking bans in recent years is encouraging. It is important to identify factors that contribute toward (or work against) these current smokers favoring smoke-free school grounds.

Table 12.1 presents some factors related to smokers' preference that school grounds be smoke-free. In 2002, only 38.7±15.3% of adolescent current smokers who perceived that teachers smoked on school grounds were supportive of school smoking bans, compared to 69.7±7.7% of those who did not think teachers smoked in school. Therefore, teachers' smoking behavior on school grounds strongly influenced whether or not adolescent current smokers favored a school smoking ban. Additionally, over three-fourths of adolescent current smokers supported school smoking bans if they perceived that most or all of student smokers obeyed the school no-smoking rule, underscoring the value of nonsmoking social norms in school. Also highlighting the value of such social norms, about three-fourths of adolescent current smokers were supportive of school smoking bans, if they had not seen anyone smoking on school property in the past 2 weeks.

Furthermore, if adolescent current smokers indicated that they did not possess or were not open to using a tobacco promotional item, then almost three-fourths were supportive of school smoking bans. Adolescent current smokers who believed that smoking did not help people relax, or had smoked fewer than 100 cigarettes, were also more likely to be in favor of smoke-free school grounds.

| Table 12.1 Percentages of Adolescent Current Smokers Supporting School Smoking Bans | |
|---|--------------|
| CTS Question | % (95% CI) |
| Do teachers smoke on school grounds? | |
| Yes | 38.7 (±15.3) |
| No | 69.7 (±7.7) |
| How many student smokers obey school no smoking rule? | |
| Most or all obey | 75.7 (±9.7) |
| A few, some, or none obey | 56.2 (±8.8) |
| Seen anyone smoking on school property in past 2 weeks? | |
| Yes | 57.6 (±9.0) |
| No | 74.8 (±8.2) |
| Have or would use a tobacco promotional item | |
| Yes | 51.0 (±13.0) |
| No | 73.3 (±6.5) |
| Cigarette smoking helps people relax | |
| Yes | 60.6 (±7.3) |
| No | 88.7 (±8.8) |
| Smoking level | |
| Smoked 100+ cigarettes | 55.7 (±11.0) |
| Smoked <100 cigarettes | 75.7 (±7.9) |
| School | |
| Private/religious school | 61.4 (±28.2) |
| Public school | 68.2 (±6.7) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

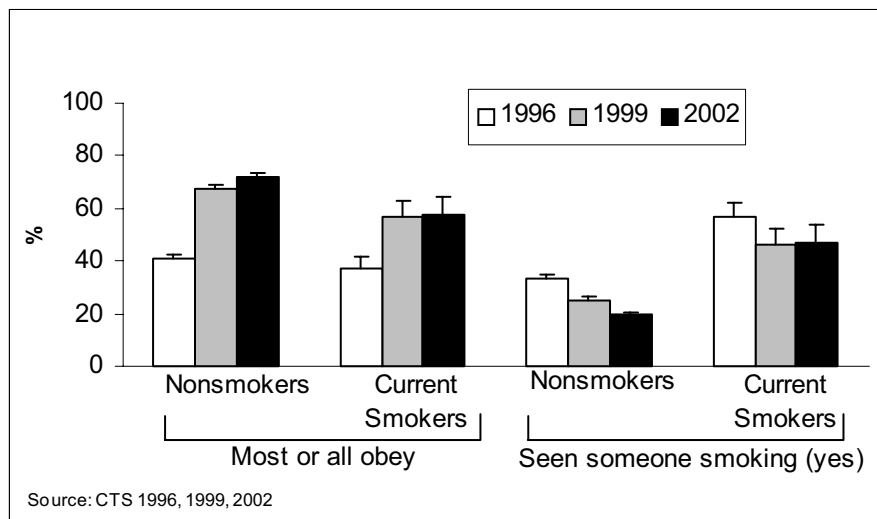
SOURCE: CTS 2002

How Do Adolescent Current Smokers View the Effectiveness of School No-Smoking Policies?

In 2002, the majority of current smokers perceived that most or all smokers obeyed the smoke-free school policy.

Figure 12.5 shows that perception of the effectiveness of school no-smoking policies has increased substantially since 1996. Compared with 1996, current smokers in 1999 were more likely (by a factor of 52.0%) to perceive that students who smoke (including presumably themselves) obeyed the rule. This percentage remained relatively level in 2002. Also compared with 1996, current smokers in 1999 were less likely, by a factor of 19.0%, to have seen someone smoking on school property. This percentage remained relatively level in 2002.

Figure 12.5: Compliance with School Policy Banning Smoking by Smoking Status and Year



| | Most or all obey | | Seen someone smoking (yes) | |
|------|------------------|-----------------|----------------------------|-----------------|
| | Nonsmokers | Current Smokers | Nonsmokers | Current Smokers |
| 1996 | 41.1 | 37.4 | 33.3 | 56.9 |
| 1999 | 67.5 | 56.9 | 24.7 | 46.1 |
| 2002 | 72.2 | 57.7 | 19.5 | 46.9 |

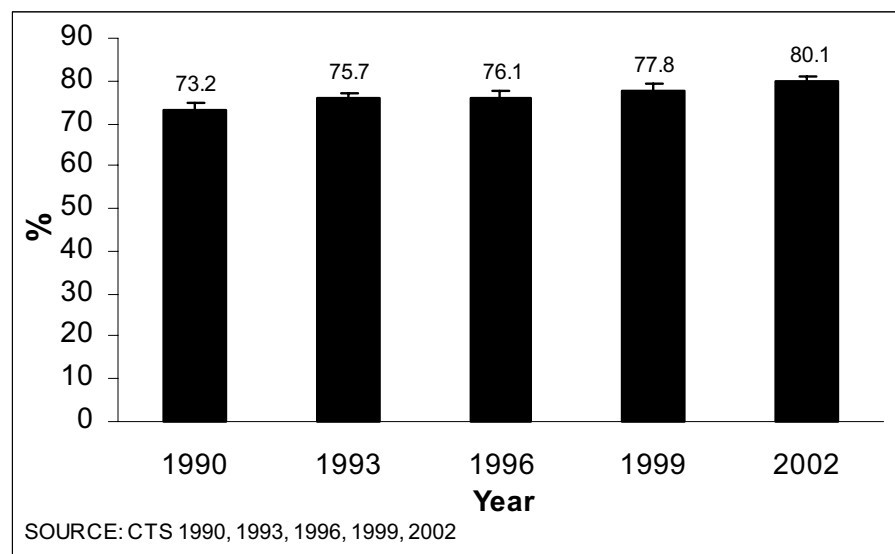
4. Trends in Smoking Health-Risk Classes at Schools: 1990-2002

Seventeen-year-old students interviewed as part of the 2002 CTS were 10 years of age in 1995; thus, smoking prevention education should have been a part of their middle-school educational experience. Therefore, nearly all students in 2002 should have had a class that discussed the health dangers of smoking. To assess the extent to which students recall having been exposed to such curriculum, the 1990, 1993, 1996, 1999, and 2002 CTS asked the following:

Have you ever taken a class or course at school in which the health risks of smoking were discussed?

The question was intentionally broad, because it was judged unlikely that students receive information on smoking at every grade level. **Figure 12.6** shows that the percentage of adolescents who recalled ever having such a class increased only slightly, but significantly, by a factor of 9.4% between 1990 and 2002, indicating that such classes were already widespread in 1990.

Figure 12.6: Students Who Recall Having a Class on the Health Risks of Smoking



Appendix Table A.12.5 presents percentages of students who recalled having a class on the health risks of smoking, analyzed by demographics, school performance, and school type. Private and public school students were equally likely to recall having a class covering the health effects of tobacco use in 1996 and 1999. However in 2002, compared with 1999, the recall of such classes decreased to $74.5 \pm 3.4\%$ among students in private schools, while it increased to $80.9 \pm 1.0\%$ among public school students, resulting in a significant difference.

Adolescent Perception of Health-Class Effectiveness in Deterring Smoking

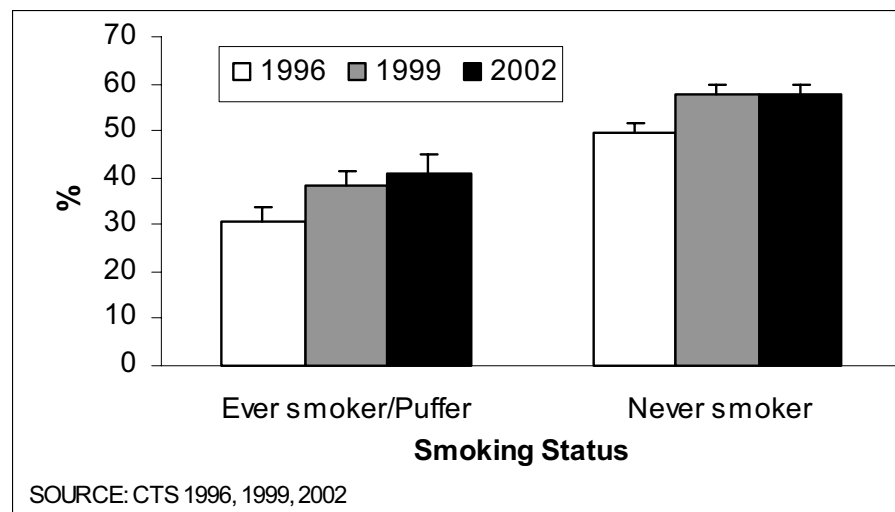
Adolescent perception of health-class effectiveness in deterring smoking is another way to measure their impact. Respondents to the 1996, 1999, and 2002 CTS who reported having a class on the health effects of smoking, were asked the following:

Do you think that kids who took the health class on the effects of smoking are more against smoking, less against smoking, or had no change in attitude toward smoking as a result of taking this class?

Of teens who recalled taking the health class in 1996, 43.1±1.6% responded that they thought kids who took the health class were more against smoking than kids who did not take the class. In 1999, this percentage had increased significantly to 52.3±1.8% and increased slightly in 2002 to 54.4±1.9%. This suggests that either the quality of classroom instruction in this regard had improved or that teens were more receptive to the messages of such classes by 1999, but their receptivity had begun to plateau by 2002.

Figure 12.7 indicates that in all years, the adolescents' smoking experience was associated with perception of class effectiveness. This association may reflect the fact that the health risks of smoking classes reinforce the determination of never smokers. Alternatively, it is unclear whether smoking/puffing took place before or after ever smokers/puffers attended the health class. If experimentation preceded the health class, it may or may not have discouraged further experimentation or smoking uptake. Since a minority of the ever smokers together with puffers did not credit the class with influencing their peers against smoking, such classes likely had minimal personal impact as well. However, even adolescent ever smokers/puffers who had such a class were significantly more likely to think it was effective in 2002 and in 1999 compared to 1996.

Figure 12.7: Students Who Think That Peers Are More Against Smoking After Taking the Health Class on the Effects of Smoking



| | Ever smoker | Never Smoker |
|------|-------------|--------------|
| 1996 | 30.8 | 49.8 |
| 1999 | 38.3 | 57.6 |
| 2002 | 40.7 | 57.6 |

Appendix Table A.12.6 presents percentages of students who perceived that the health class on the effects of smoking was effective, analyzed by school type, as well as by demographics and school performance. In 2002, a seemingly larger percentage of students in private schools reported that the classes on the health effects of smoking were effective ($58.7 \pm 4.5\%$, religious and non-religious), compared with students in public schools ($53.8 \pm 2.0\%$). Although non-significant, this suggests that while students in private schools were less likely to report having had a class on the health effects of smoking, a greater percentage of these students appeared to perceive that the classes were effective, compared with students in public schools.

5. Summary

Compliance with smoke-free school policies as evidenced by students reporting that most or all of the kids who smoke obey the policy increased sharply between 1996 ($40.7 \pm 1.4\%$) and 1999 ($66.7 \pm 1.5\%$), and increased significantly again by 2002 ($71.5 \pm 1.4\%$). Further, report of seeing someone smoke on school property in the past two weeks declined significantly from $36.0 \pm 1.5\%$ in 1996 to $26.3 \pm 1.7\%$ in 1999 and to $20.8 \pm 1.2\%$ in 2002. All demographic groups showed these encouraging trends.

Further, significantly fewer students perceived that their teachers were smoking on school property in 2002 ($13.0 \pm 1.3\%$) than in 1999 ($15.7 \pm 1.8\%$) or 1996 ($19.4 \pm 1.4\%$). This change in perception represents progress, as teachers are important role models for students. Either fewer teachers smoked when compared to earlier years, or more teachers were respecting the smoke-free policies in California schools, so that students were less aware of their smoking. However, more private school students than public school students ($26.4 \pm 6.3\%$ vs. $11.7 \pm 1.4\%$ in 2002) perceived that their teachers smoked on school grounds.

Teachers' perceived smoking behavior on school grounds strongly influenced whether or not adolescent current smokers favored a school smoking ban. Encouragingly, in 2002, $90.5 \pm 0.9\%$ of current student smokers believed that smoking should be banned on school property for everyone at all times. While current smokers were less likely to hold this opinion than nonsmokers ($69.1 \pm 6.9\%$ vs. $91.6 \pm 1.0\%$ in 2002), between 1996 and 1999, they showed a larger increase (a factor of 23.8%) in their support for a smoke-free school, compared to nonsmokers (a factor of 3.9%). Smoke-free schools may be an important factor contributing to the downturn in adolescent smoking (see Chapters 2 and 7).

In addition, the results presented in this chapter showed that classes on the health effects of smoking might be improving. Significantly more students recalled taking such a class in 2002 ($80.1 \pm 1.0\%$) than in 1990 ($73.2 \pm 1.8\%$). However, students in private schools were significantly less likely to recall taking such a class than students in public schools ($74.5 \pm 3.4\%$ vs. $80.9 \pm 1.0\%$ in 2002). Nonetheless, a larger percentage of students in private religious schools reported that their classes were effective compared with students in public schools ($62.8 \pm 5.3\%$ vs. $53.8 \pm 2.0\%$ in 2002). This finding may simply reflect that fewer private schools students have ever smoked/puffed cigarettes, since, in general, never smokers were more likely than those who had tried a cigarette to think that classes on the health risks of smoking are

effective (57.6 \pm 2.1% vs. 40.7 \pm 4.3% in 2002). Encouragingly, ever smokers/puffers have shown an increase in the perception that the health class was effective; in 1996, 49.8 \pm 2.0% thought the health class effective.

Chapter

12

APPENDIX

Smoke-free Schools: Policies and Compliance

This appendix presents supporting tabular data for demographic and school performance variables for the material covered in the main body of the chapter. The tables relevant to each section are shown under the corresponding chapter section and subsection heading.

1. Student Compliance with Smoke-free School Policies

Obeying the Rule Not to Smoke

Table A.12.1 shows the perception that most or all students obey the rule for demographic subgroups. Male students showed a significant increase from 1999 to 2002 in reporting that most or all smoking students obeyed the no-smoking rule, and were more likely to do

| Table A.12.1 How Many Students Who Smoke Obey the Rule Not to Smoke on School Property? | | | | | | |
|--|----------------------------|-------------|-------------|-------------|-------------|---------------------------|
| Demographics | Responding "Most" or "All" | | | | | Factor Increase 1999-2002 |
| | 1990 % | 1993 % | 1996 % | 1999 % | 2002 % | % |
| All Students | 46.3 (±2.0) | 43.7 (±1.6) | 40.7 (±1.4) | 66.7 (±1.5) | 71.5 (±1.4) | 7.2 |
| Gender | | | | | | |
| Boys | 48.5 (±2.9) | 46.0 (±2.2) | 40.5 (±1.9) | 67.0 (±2.0) | 74.7 (±1.8) | 11.5 |
| Girls | 44.2 (±2.7) | 41.4 (±2.9) | 40.9 (±2.0) | 66.4 (±2.2) | 68.0 (±1.3) | 2.4 |
| Age | | | | | | |
| 12-13 | 56.9 (±3.9) | 53.5 (±2.2) | 46.1 (±2.4) | 80.0 (±2.4) | 81.8 (±2.2) | 2.3 |
| 14-15 | 41.9 (±3.5) | 39.0 (±3.0) | 37.7 (±2.6) | 62.0 (±2.6) | 66.6 (±2.8) | 7.4 |
| 16-17 | 39.3 (±3.6) | 37.0 (±3.6) | 38.3 (±2.5) | 57.7 (±2.8) | 64.9 (±2.7) | 12.5 |
| Race/Ethnicity | | | | | | |
| African American | 49.2 (±8.8) | 42.5 (±7.7) | 38.3 (±5.0) | 65.2 (±5.4) | 65.7 (±5.0) | 1.0 |
| Asian/PI | 42.1 (±6.6) | 38.0 (±5.9) | 34.5 (±4.3) | 61.4 (±4.8) | 74.2 (±4.4) | 20.8 |
| Hispanic | 42.8 (±3.5) | 38.5 (±3.8) | 39.6 (±2.9) | 63.0 (±2.5) | 66.8 (±2.4) | 6.0 |
| Non-Hispanic White | 48.9 (±2.6) | 47.9 (±2.3) | 43.3 (±2.0) | 72.5 (±2.0) | 76.5 (±2.1) | 5.5 |
| School Performance | | | | | | |
| Much above average | 49.2 (±5.2) | 50.9 (±4.0) | 42.9 (±2.3) | 71.3 (±3.6) | 78.4 (±2.6) | 10.0 |
| Above average | 48.1 (±2.9) | 44.9 (±3.2) | 43.0 (±2.4) | 71.3 (±2.2) | 72.8 (±2.4) | 2.1 |
| Average or below | 43.6 (±2.7) | 39.6 (±2.7) | 37.1 (±2.1) | 60.4 (±2.2) | 66.0 (±2.6) | 9.3 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1993, 1996, 1999, 2002

so than females in 2002. Students aged 12-13 years reported significantly higher compliance than older students. This finding would be expected for two reasons: fewer 12-13 year olds smoke, and a smoking ban in junior high and middle schools has been in place for over 40 years (Pentz et al., 1989). Older students showed the greatest factor increase between 1999 and 2002.

While a significantly higher percentage of Non-Hispanic White than minority students reported that most or all student smokers obeyed the school smoking rule in 1999, all ethnic groups showed impressive increases in perceived compliance with the school smoking ban since 1996. Asian/PI students reporting compliance also increased significantly (over 20%) from 1999 to 2002, to a level comparable to that of Non-Hispanic Whites. In all years, students with average or below average school performance were significantly less likely to think the no-smoking rule was obeyed by most or all smoking students, but all groups showed substantial increases in this perception from 1996 to 1999. From 1999 to 2002, those who performed much better than average in school were significantly more likely to think that most or all smoking students obeyed the no-smoking rule.

How Many Students Witnessed Smoking in School?

Table A.12.2 shows that the percentage of students who had seen anyone smoking at school varied widely, depending on the student's age. In all years, significantly more older teens observed someone smoking at school compared to younger teens. While 14- to 15 and 16- to 17-year-old teens reported significant decreases in seeing anyone smoking at school from 1999 to 2002 (28% and 17% decrease, respectively), the percentage of 12- to 13-year-olds reported increased by a factor of 10.7% (not significant) in seeing someone smoking at school.

The decrease in witnessing someone smoking from 1999 to 2002 did not change significantly for African American and Hispanic

| Table A.12.2 | | | | |
|--|---------------|---------------|---------------|----------------------------------|
| Students Who Have Seen Anyone Smoking at School in the Past 2 Weeks | | | | |
| Demographic Groups | 1996 % | 1999 % | 2002 % | Factor Change 1999-2002 % |
| All Students | 36.0 (∂1.5) | 26.3 (∂1.7) | 20.8 (∂1.2) | -20.9 |
| Gender | | | | |
| Boys | 37.0 (∂2.1) | 27.3 (∂2.5) | 20.3 (∂2.1) | -25.6 |
| Girls | 34.9 (∂2.1) | 25.2 (∂1.8) | 21.4 (∂1.6) | -15.1 |
| Age | | | | |
| 12-13 | 12.3 (∂2.0) | 7.5 (∂1.7) | 8.3 (∂1.3) | 10.7 |
| 14-15 | 44.2 (∂2.4) | 33.2 (∂2.8) | 23.9 (∂2.4) | -28.0 |
| 16-17 | 51.1 (∂2.3) | 38.3 (∂2.6) | 31.8 (∂2.5) | -17.0 |
| Race/Ethnicity | | | | |
| African American | 35.1 (∂5.2) | 27.1 (∂6.2) | 26.9 (∂5.7) | -0.70 |
| Asian/PI | 41.7 (∂4.1) | 31.0 (∂5.7) | 17.9 (∂3.3) | -42.3 |
| Hispanic | 32.2 (∂2.9) | 24.4 (∂2.4) | 20.3 (∂2.2) | -16.8 |
| Non-Hispanic White | 37.0 (∂1.8) | 26.7 (∂2.0) | 20.6 (∂1.9) | -22.8 |
| School Performance | | | | |
| Much better than average | 35.5 (∂3.3) | 26.5 (∂3.2) | 17.0 (∂2.2) | -35.8 |
| Above average | 36.1 (∂2.6) | 24.2 (∂2.4) | 20.0 (∂2.2) | -17.4 |
| Average or below | 36.3 (∂2.1) | 28.2 (∂3.1) | 24.0 (∂2.1) | -14.9 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1996, 1999, 2002

students. However the decrease was considerable for Non-Hispanic White students (a factor of 22.8%) and impressive among Asian/PI students (a factor of 42.3%). There was a significant decrease in seeing someone smoking in school from 1999 to 2002 for those who reported doing much better than average in school.

2. Trends in Perceptions of Teachers' Smoking

As seen in **Table A.12.3**, across all demographic groups, students' perceptions that teachers smoked on school grounds decreased steadily from 1996 to 2002. Boys' perception of teachers smoking on school grounds decreased more so than girls'. In 2002, perception was about the same in boys and girls. African American and Asian/PI students showed the greatest decrease in perceptions of teachers smoking on school grounds from 1999 to 2002, as did those students who reported doing above average and average and below in school. Although the percentage of private school students reporting teachers smoked in school was consistently higher than public school students, a larger percentage of religious school students appeared to report teachers smoking in school than did non-religious school students in 2002.

| Table A.12.3 Students Who Perceive That Teachers Smoke On School Grounds | | | | |
|---|------------------|------------------|------------------|---|
| Demographic Groups | 1996 % | 1999 % | 2002 % | Factor Change 1999-2002 % |
| All Students | 19.4 (±1.4) | 15.7 (±1.8) | 13.0 (±1.3) | -17.2 |
| Gender | | | | |
| Boys | 20.9 (±2.4) | 16.6 (±2.8) | 12.9 (±2.2) | -22.3 |
| Girls | 17.9 (±2.0) | 14.8 (±1.8) | 13.1 (±1.7) | -11.5 |
| Age | | | | |
| 12-13 | 16.1 (±2.7) | 14.0 (±2.9) | 13.8 (±3.2) | -1.4 |
| 14-15 | 16.3 (±2.1) | 12.7 (±2.2) | 9.4 (±1.9) | -26.0 |
| 16-17 | 24.6 (±2.6) | 19.4 (±2.7) | 15.7 (±2.3) | -19.1 |
| Race/Ethnicity | | | | |
| African American | 26.5 (±6.9) | 24.1 (±6.0) | 14.5 (±5.3) | -39.8 |
| Asian/PI | 17.3 (±4.6) | 17.4 (±5.2) | 11.8 (±4.1) | -32.2 |
| Hispanic | 19.4 (±3.1) | 15.1 (±2.4) | 14.6 (±2.7) | -3.3 |
| Non-Hispanic White | 18.7 (±1.8) | 14.1 (±2.2) | 12.4 (±1.9) | -12.1 |
| School Performance | | | | |
| Much better than average | 18.7 (±2.6) | 13.7 (±3.4) | 14.3 (±2.8) | 4.4 |
| Above average | 19.5 (±2.1) | 15.8 (±2.7) | 12.2 (±2.3) | -22.8 |
| Average or below | 19.8 (±2.2) | 16.6 (±2.8) | 13.0 (±2.1) | -21.7 |
| School | | | | |
| Public | 16.7 (±1.4) | 14.4 (±1.8) | 11.7 (±1.4) | -18.8 |
| Private, Religious | 44.1 (±7.1) | 29.3 (±7.3) | 29.6 (±8.1) | 1.0 |
| Private, Non-religious | 44.5 (±11.0) | 29.0 (±9.8) | 18.7 (±9.8) | -35.5 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1993, 1996, 1999, 2002

3. Trends in Student Preferences for Smoke-free School Grounds: 1993-2002

Table A.12.4 shows preference for a smoke-free school within different demographic subgroups of students. Although younger students were significantly more likely to prefer that smoking be banned on school grounds in all years, it was the oldest students who showed a greater shift in preference between 1993 and 2002. By 2002, approximately 90% of all age groups preferred that smoking be banned on school grounds. Non-Hispanic White students also showed a significantly increased preference for smoke-free schools over this time. In contrast to 1996, in 1999 and 2002, this preference was equally high regardless of the level of school performance. In fact, by 2002, all demographic groups showed very high levels of preference for smoke-free school campuses. In 1996, students from private, non-religious schools were less likely to prefer a smoking ban on school grounds than students from private religious schools and public schools. However, by 2002, approximately equal percentages of students from public and private schools favored a ban on school smoking.

| Table A.12.4 | | | | | |
|--|-------------------|-------------------|-------------------|-------------------|--|
| Students Who Preferred That Smoking be Banned on School Grounds | | | | | |
| Demographic Groups | 1993 % | 1996 % | 1999 % | 2002 % | Factor Change 1999-2002 % |
| All Students | 84.8 (±1.3) | 84.4 (±1.1) | 89.2 (±0.8) | 90.5(±0.9) | 1.5 |
| Gender | | | | | |
| Boys | 84.3 (±2.1) | 84.1 (±1.7) | 89.1 (±1.1) | 89.8(±1.4) | 0.8 |
| Girls | 85.4 (±2.0) | 84.8 (±1.3) | 89.3 (±1.5) | 91.3(±1.2) | 2.2 |
| Age | | | | | |
| 12-13 | 90.9 (±2.0) | 90.4 (±1.5) | 92.2 (±1.4) | 92.1(±1.6) | -0.1 |
| 14-15 | 83.6 (±2.7) | 84.3 (±2.3) | 90.1 (±1.5) | 90.7(±1.6) | 0.7 |
| 16-17 | 79.0 (±2.7) | 78.3 (±2.6) | 84.9 (±2.0) | 88.5(±1.6) | 4.2 |
| Race/Ethnicity | | | | | |
| African American | 84.1 (±6.2) | 86.9 (±3.7) | 90.7 (±3.4) | 92.6(±3.2) | 2.1 |
| Asian/PI | 86.0 (±5.4) | 88.8 (±2.5) | 88.2 (±3.2) | 92.2(±2.3) | 4.5 |
| Hispanic | 86.7 (±2.6) | 82.3 (±2.1) | 86.2 (±1.7) | 88.3(±1.7) | 2.4 |
| Non-Hispanic White | 83.5 (±1.6) | 84.2 (±1.6) | 91.7 (±1.0) | 92.2(±1.1) | 1.0 |
| School Performance | | | | | |
| Much above average | 88.7 (±2.8) | 89.2 (±1.9) | 90.0 (±2.1) | 91.6(±1.8) | 1.8 |
| Above average | 84.7 (±2.1) | 86.0 (±1.6) | 90.6 (±1.6) | 92.1(±1.3) | 1.7 |
| Average or below | 83.4 (±2.2) | 80.1 (±2.0) | 87.4 (±1.8) | 88.4(±1.7) | 1.1 |
| School | | | | | |
| Public | | 84.6 (±1.2) | 89.0 (±0.8) | 90.6(±0.9) | 1.8 |
| Private, Religious | | 85.4 (±2.6) | 92.7 (±3.1) | 90.4(±2.6) | -2.5 |
| Private, Non-religious | | 75.2 (±7.0) | 87.3 (±5.7) | 90.9(±4.4) | 4.1 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1993, 1996, 1999, 2002

4. Trends in Smoking Health-Risk Classes at Schools 1990-1999

While all students should now be reached by classes on the health risks of smoking, such classes may not make a sufficient impact to be remembered. It is of interest, therefore, to examine which demographic groups were able to recall having a class on the health risks of smoking in recent years. **Table A.12.5** shows recall of a smoking prevention class by demographic groups in 1996, 1999, and 2002.

As students get older, they have more opportunity to have had a class that discussed the health effects of smoking. Thus, it is not surprising that recall of having such a class showed a significant age trend. While African American and Hispanic students in 1996 were less likely to recall having a class that covered this topic, it is encouraging that this disparity in recall for minorities was closing by 2002. Students performing at average or below

average in school were significantly less likely to recall having a class in all survey years. Both private and public school students were about equally likely to recall having a class covering the health effects of tobacco use in 1996 and 1999. However in 2002, compared

with 1999, recall of such classes decreased among students in religious private school, while it increased among public school students, so that a significantly greater percentage of public school students recalled classes on the health risks of smoking than students in religious private schools in 2002.

| Table A.12.5 Students Who Recall Having a Class on the Health Risks of Smoking | | | | |
|---|-------------|-------------|-------------|------------------------------------|
| Demographic Groups | 1996 % | 1999 % | 2002 % | Factor Change 1999-2002 % |
| All Students | 76.1 (±1.3) | 77.8 (±1.4) | 80.1 (±1.0) | 3.0 |
| Gender | | | | |
| Boys | 75.2 (±1.9) | 76.8 (±2.1) | 78.8 (±1.7) | 2.6 |
| Girls | 77.0 (±1.6) | 79.0 (±1.7) | 81.5 (±1.6) | 3.2 |
| Age | | | | |
| 12-13 | 74.0 (±2.1) | 76.4 (±2.4) | 78.5 (±2.1) | 2.7 |
| 14-15 | 76.0 (±2.1) | 77.2 (±2.4) | 79.1 (±1.9) | 2.5 |
| 16-17 | 78.3 (±2.5) | 80.2 (±2.1) | 82.9 (±1.7) | 3.4 |
| Race/Ethnicity | | | | |
| African American | 70.4 (±5.2) | 74.0 (±5.6) | 74.3 (±6.2) | 0.4 |
| Asian/PI | 78.6 (±3.7) | 77.9 (±4.5) | 80.7 (±4.2) | 3.6 |
| Hispanic | 69.9 (±3.0) | 74.0 (±2.7) | 77.0 (±2.0) | 4.1 |
| Non-Hispanic White | 80.3 (±1.5) | 82.2 (±1.5) | 83.9 (±1.5) | 2.1 |
| School Performance | | | | |
| Much better than average | 79.9 (±2.4) | 79.8 (±3.0) | 84.0 (±2.2) | 5.3 |
| Above average | 78.8 (±1.7) | 81.4 (±1.9) | 81.4 (±1.6) | 0.0 |
| Average or below | 71.3 (±2.0) | 73.7 (±2.6) | 76.5 (±1.7) | 3.8 |
| School | | | | |
| Public | 76.4 (±1.4) | 78.1 (±1.5) | 80.9 (±1.0) | 3.6 |
| Private, Religious | 75.3 (±3.9) | 77.4 (±4.9) | 74.3 (±4.3) | -4.0 |
| Private, Non-religious | 73.4 (±8.0) | 77.4 (±6.5) | 74.9 (±8.2) | -3.2 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1996, 1999, 2002

Adolescent Perception of Health Class Effectiveness in Deterring Smoking

As seen in **Table A.12.6**, of teens who recalled taking the health class in 1996, over 40% responded that they thought kids who took the health class were more against smoking than kids who did not take the class. In 1999, this percentage had increased significantly to over 50%, and increased slightly again in 2002, suggesting that either the quality of classroom instruction in this regard had improved or that teens were more receptive to the messages of such classes.

In all years, boys were more likely than girls to perceive that classes on the health effects of smoking were effective. Younger adolescents were also more likely than older adolescents to perceive that classes on the health effects of smoking were effective. Furthermore, as students reported doing better in school, they were more likely to perceive that classes on the health effects of smoking were effective.

| Table A.12.6 Students Who Perceived That the Health Class on the Effects of Smoking Was Effective | | | | |
|--|-------------------|-------------------|-------------------|--|
| Demographic Groups | 1996 % | 1999 % | 2002 % | Factor Change 1999-2002 % |
| All Students | 43.1 (±1.6) | 52.3 (±1.8) | 54.4 (±1.9) | 3.8 |
| Gender | | | | |
| Boys | 45.7 (±1.9) | 55.0 (±2.5) | 56.7 (±2.8) | 3.1 |
| Girls | 40.3 (±2.3) | 49.4 (±2.5) | 51.9 (±2.3) | 5.1 |
| Age | | | | |
| 12-13 | 59.5 (±3.1) | 68.5 (±2.5) | 69.1 (±3.1) | 0.9 |
| 14-15 | 38.6 (±2.2) | 49.4 (±3.7) | 51.8 (±2.7) | 4.9 |
| 16-17 | 32.2 (±3.0) | 39.0 (±3.0) | 41.5 (±2.8) | 6.4 |
| Race/Ethnicity | | | | |
| African American | 41.4 (±5.8) | 52.0 (±5.8) | 53.2 (±6.9) | 2.3 |
| Asian/PI | 46.3 (±5.7) | 56.6 (±6.3) | 55.9 (±4.6) | -1.2 |
| Hispanic | 42.5 (±3.3) | 51.5 (±2.6) | 55.7 (±3.4) | 8.2 |
| Non-Hispanic White | 43.4 (±2.4) | 51.5 (±2.6) | 53.6 (±2.3) | 4.1 |
| School Performance | | | | |
| Much better than average | 47.3 (±3.4) | 58.2 (±3.7) | 61.2 (±3.8) | 5.2 |
| Above average | 44.9 (±3.1) | 54.0 (±2.9) | 56.5 (±2.9) | 4.6 |
| Average or below | 38.3 (±2.5) | 47.5 (±2.9) | 47.5 (±2.9) | 0.0 |
| School | | | | |
| Public | 47.8 (±1.6) | 51.7 (±2.1) | 53.8 (±2.0) | 4.1 |
| Private, Religious | 50.5 (±4.7) | 60.7 (±7.0) | 62.8 (±5.3) | 3.5 |
| Private, Non-religious | 37.0 (±12.3) | 49.3 (±8.9) | 48.1 (±8.5) | -2.4 |
| TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS. | | | | |
| SOURCE: CTS 1996, 1999, 2002 | | | | |

Although perceptions of class effectiveness increased between 1996 and 1999, and leveled off by 2002, there were no significant differences across racial/ethnic groups in any year. However, in 2002, a greater percentage of students in religious private schools reported that the classes on the health effects of smoking were effective (62.8±5.3%), compared with students in non-religious private schools (48.1±8.5%) and in public schools (53.8±2.0%). Thus, although students in religious private schools were less likely to report having had a class on the health effects of smoking (see Appendix Table A.12.5), a greater percentage of these students perceived that the classes were effective, compared with public and non-religious private school students.

GLOSSARY

Adolescents

Current smoker – has smoked a cigarette on at least one day in the past month.

Ever smoker – has smoked a cigarette (excludes puffers).

Never smoker – has never smoked or even puffed on a cigarette.

Non-current smoker – has not smoked a cigarette on any days in the past month.

Nonsmoker – never smoker or non-current smoker.

Puffer – someone who has not smoked a cigarette, but admits to puffing on one.

REFERENCES

- Allen K, Moss A, Botman S. *Teenage Attitudes and Practices Survey (TAPS): Methodology and Response Rates*. Paper presented at the 119th Annual Meeting of the American Public Health Association; **1991**.
- Allen KF, Moss AJ, Giovino GA, Shopland DR, Pierce JP. *Teenage Tobacco-Use: Data Estimates from the Teenage Attitudes and Practices Survey: United States, 1989*. Advance Data; No. 224. Hyattsville, MD: National Center for Health Statistics; **1992**.
- Bowen DJ, Kinne S, Orlandi M. School policy in COMMIT: a promising strategy to reduce smoking by youth. *J School Health*. **1995**;65:140-144.
- Fishbein H, Larsen M, Howard Pitney B, Rohrback L. *Independent Evaluation of the California Tobacco Control Prevention and Education Program: Wave 1 Data, 1996-1997*. Sacramento, CA: California Department of Health Services; **1998**.
- Hansen WB. School-based substance abuse prevention: a review of the state of the art in curriculum, 1980–1990. *Health Educ Rev*. **1992**;7:403–430.
- Hill D, Borland R. Adults' accounts of onset of regular smoking: influences of school, work, and other settings. *Public Health Rep*. **1991**;106:181-185.
- Pentz MA, Brannon BR, Charlin VL, Barrett EJ, MacKinnon DP, Flay BR. The power of policy: the relationship of smoking policy to adolescent smoking. *Am J Public Health*. **1989**;79:857–862.
- US Department of Health and Human Services (USDHHS). *Preventing Tobacco Use Among Young People: A Report of the Surgeon General*. Atlanta, GA: USDHHS, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; **1994**.
- US Department of Health and Human Services (USDHHS). *Reducing the Health Consequences of Smoking: 25 Years of Progress. A Report of the Surgeon General*. Atlanta, GA: USDHHS, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health. DHHS Pub. No. (CDC) 89-8411; **1989**.
- US Department of Health and Human Services (USDHHS). *Reducing Tobacco Use. A Report of the Surgeon General*. Atlanta, GA: USDHHS, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; **2000**. S/N 017-001-0544-4.

Chapter 13

A Summary of Racial/Ethnic Differences

| | |
|--|-------------|
| KEY FINDINGS | 13-2 |
| Introduction..... | 13-3 |
| 1. Trends in Adult Tobacco Use in California..... | 13-3 |
| Adults (18+ years, Chapter 2) | 13-3 |
| Young Adults (18-29 years, Chapter 3)..... | 13-5 |
| 2. Young Adult Uptake Patterns and Vulnerability to Smoking (Chapter 3)..... | 13-6 |
| 3. Adolescent Smoking Behavior | 13-8 |
| 4. Protection of Nonsmokers from Secondhand Smoke (Chapter 6)..... | 13-12 |
| 5. Smoking Cessation (Chapter 8) | 13-16 |
| 6. Price Sensitivity and Taxes (Chapter 9)..... | 13-20 |
| 7. Media Influences on Smoking..... | 13-22 |
| 8. Limiting Youth Access to Cigarettes (Chapter 11)..... | 13-25 |
| 9. Smoke-free Schools (Chapter 12)..... | 13-27 |
| 10. Summary of Racial/Ethnic Differences | 13-30 |
| GLOSSARY | 13-34 |
| REFERENCES..... | 13-36 |

Chapter

13

KEY FINDINGS

A Summary of Racial/Ethnic Disparities in Tobacco Control

- 1) **African Americans continued to exhibit the highest adult smoking prevalence rate** (20.8% in 2002), followed by Non-Hispanic Whites, Hispanics, and Asian/Pacific Islanders (PI). Among adult males, prevalence rates for Asian/Pis, Hispanics, and Non-Hispanic Whites were very similar (about 19%), while the prevalence among African Americans was significantly higher (23.9%).
- 2) **Smoking prevalence among young African Americans (18-29 years) declined by a factor of 41.6% between 1990 and 1993**, and was significantly lower than smoking prevalence in Non-Hispanic Whites through 2002.
- 3) **Smoking prevalence among adolescents was lowest among the Asian/PI group (3.7%), followed by African Americans (4.4%), Hispanics (5.0%), and Non-Hispanic Whites (5.8%).** Prevalence in the Asian/PI and African American groups was significantly different from prevalence in Non-Hispanic Whites. In 2002, 5.0% of all adolescents were current smokers.
- 4) **Exposure to smoking in the workplace decreased markedly in all racial/ethnic groups between 1990 and 2002.** In all years, Hispanics were significantly more likely to report exposure compared to Non-Hispanic Whites.
- 5) **In general, racial/ethnic minorities attempted to quit smoking at higher rates than Non-Hispanic Whites.** Hispanic smokers were more likely than Non-Hispanic Whites to stay off of cigarettes for a week or longer in all survey years.
- 6) **Hispanics were the least likely to use nicotine replacement therapy for their most recent quit attempt in every survey year, and least likely to be advised to quit by their physicians.** However, many Hispanic smokers are light or non-daily smokers and are, therefore, less likely to need assistance or receive advice.
- 7) **The amount of money spent on cigarettes increased significantly in all racial/ethnic groups because of the unprecedented increase in cigarette prices in 1999.** Across all survey years, racial/ethnic minorities paid more per pack for cigarettes than Non-Hispanic Whites, although Non-Hispanic Whites spent more per month on cigarettes than minorities because of higher cigarette consumption.
- 8) **Adolescents' exposure to anti-tobacco messages on billboards, radio, or TV did not differ significantly between racial/ethnic groups.** Further, the percentage of adolescents who did not have a favorite cigarette advertisement significantly increased from 1996 to 2002 across all racial/ethnic groups.
- 9) **The percentage of adolescent never smokers who perceived that cigarettes were easy to obtain decreased significantly in all racial/ethnic groups between 1996 and 2002.**
- 10) **Perceived compliance with school smoking bans increased significantly in all racial/ethnic groups of students since 1996.** In 2002, the percentage of Hispanic students preferring a smoke-free school was lower than that of Non-Hispanic White students (88.3% vs. 92.2%).

A Summary of Racial/Ethnic Disparities in Tobacco Control

Introduction

Ethnic minority populations continue to suffer disproportionately from chronic and preventable diseases compared with non-Hispanic Whites, and cigarette smoking is a major factor in heart disease, cancer, and stroke, three leading causes of death among ethnic minorities (USDHHS, 1998). A major goal of the California Tobacco Control Program is to eliminate racial/ethnic disparities in smoking (TEROC, 2003). This chapter summarizes and highlights pertinent racial/ethnic disparities or lack thereof in smoking and smoking-related issues that were identified throughout this report. It should be noted, however, that while some racial/ethnic differences were evident, sample sizes for various racial/ethnic groups were at times too small for differences or trends to be statistically significant.

Section 1 begins by providing an overview of trends in tobacco use in California across racial/ethnic groups of adults (ages 18+), and young adults (ages 18-29). Section 2 of the chapter focuses on racial/ethnic differences in young adult uptake patterns and vulnerability to smoking. Section 3 describes adolescent smoking behavior across racial/ethnic groups. Section 4 continues with racial/ethnic disparities in the protection of non-smokers from secondhand smoke. Section 5 focuses on racial/ethnic differences in smoking cessation. Section 6 then highlights racial/ethnic differences in cigarette price sensitivity and support for additional excise taxes, while Section 7 describes media influences on smoking across racial/ethnic groups. Section 8 follows with descriptions of racial/ethnic variation in limiting youth access to cigarettes. Racial/ethnic differences in various factors relating to smoke-free schools are detailed in Section 9. Finally, Section 10 summarizes the major racial/ethnic differences presented throughout the chapter.

1. Trends in Adult Tobacco Use in California

Adults (18+ years, Chapter 2)

Overall Trends

Table 13.1 shows the overall standardized smoking prevalence trends by race/ethnicity. Since 1990, African Americans have exhibited the highest adult smoking prevalence rate, followed by Non-Hispanic Whites, Hispanics, and Asian/PIs. Overall, by 2002, smoking prevalence had decreased by a factor of approximately 21% across race/ethnicity since 1990, with Hispanics decreasing by a factor of 25.3%.

| Table 13.1 Standardized Adult Smoking Prevalence by Race/Ethnicity | | | | | | | |
|---|-------------|-------------|-------------|-------------|-------------|---------------------------------|---------------------------------|
| | 1990 | 1993 | 1996 | 1999 | 2002 | Factor Decrease 1990-2002 | Factor Decrease 1999-2002 |
| | % | % | % | % | % | % | % |
| Overall | 19.5 (±0.5) | 17.4 (±0.5) | 16.6 (±0.4) | 17.1 (±0.3) | 15.4 (±0.3) | -21.0 | -9.9 |
| Race/Ethnicity | | | | | | | |
| African American | 26.7 (±2.1) | 22.2 (±2.1) | 22.9 (±1.4) | 21.8 (±1.1) | 20.8 (±1.4) | -22.1 | -4.6 |
| Asian/PI | 14.9 (±1.3) | 11.7 (±1.3) | 12.4 (±0.9) | 13.5 (±0.9) | 12.0 (±0.9) | -19.5 | -11.1 |
| Hispanic | 17.4 (±1.0) | 14.9 (±1.0) | 13.9 (±0.8) | 14.5 (±0.5) | 13.0 (±0.5) | -25.3 | -10.3 |
| Non-Hispanic White | 20.7 (0.5) | 19.6 (0.6) | 18.2 (0.3) | 18.7 (0.4) | 16.8 (0.4) | -18.8 | -10.2 |

TABLE ENTRIES STANDARDIZED (2002) PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1993, 1996, 1999, 2002

Trends by Gender

Table 13.2 shows the trends in standardized prevalence for adult males. In 2002, the prevalence of smoking among adult Asian/Pacific Islanders, Hispanics, and Non-Hispanic white males was very similar (about 19%), while the prevalence among adult African American males was significantly higher (23.9±1.9%). Over the entire period, the declines were very similar. Except for African Americans, the other racial/ethnic groups of males started out with a prevalence of around 22% in 1999 and reached a prevalence of about 19% in 2002.

| Table 13.2 Standardized Adult Smoking Prevalence by Race/Ethnicity - Males | | | | | | | |
|---|-------------|-------------|-------------|-------------|-------------|---------------------------------|---------------------------------|
| | 1990 | 1993 | 1996 | 1999 | 2002 | Factor Decrease 1990-2002 | Factor Decrease 1999-2002 |
| | % | % | % | % | % | % | % |
| Overall | 23.0 (±0.6) | 20.9 (±0.8) | 19.7 (±0.5) | 20.5 (±0.5) | 19.1 (±0.5) | -17.0 | -6.8 |
| Race/Ethnicity | | | | | | | |
| African American | 29.1 (±2.7) | 25.7 (±2.9) | 24.8 (±1.8) | 25.3 (±2.0) | 23.9 (±1.9) | -17.9 | -5.5 |
| Asian/PI | 22.3 (±1.8) | 17.8 (±2.0) | 17.7 (±1.4) | 19.3 (±1.4) | 18.0 (±1.6) | -19.3 | -6.7 |
| Hispanic | 23.2 (±1.4) | 21.0 (±1.7) | 19.1 (±1.2) | 20.2 (±0.7) | 18.8 (±1.0) | -19.0 | -6.9 |
| Non-Hispanic White | 21.8 (±0.5) | 20.5 (±0.8) | 19.6 (±0.4) | 20.2 (±0.6) | 18.7 (±0.6) | -14.2 | -7.4 |

TABLE ENTRIES ARE STANDARDIZED (2002) PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1993, 1996, 1999, 2002

Table 13.3 presents the trends for females, and clearly indicates that smoking prevalence is much lower in Asian/PI and Hispanic women compared to African American and Non-Hispanic White women. Earlier in the 1990s, Asian/PI women showed lower smoking prevalence than Hispanic women, but this difference had disappeared by 1999. While the decline between 1999 and 2002 was significant for women overall, the smaller subgroup sample sizes yielded significant declines only for Hispanic and Non-Hispanic White women.

| Table 13.3 Standardized Adult Smoking Prevalence by Race/Ethnicity - Females | | | | | | | |
|---|-------------|-------------|-------------|-------------|-------------|---------------------------------|---------------------------------|
| | 1990 | 1993 | 1996 | 1999 | 2002 | Factor Decrease 1990-2002 | Factor Decrease 1999-2002 |
| | % | % | % | % | % | % | % |
| Overall | 16.1 (±0.7) | 14.1 (±0.5) | 13.7 (±0.4) | 13.8 (±0.3) | 11.9 (±0.4) | -26.1 | -13.8 |
| Race/Ethnicity | | | | | | | |
| African American | 24.6 (±2.7) | 19.7 (±2.3) | 21.3 (±1.9) | 19.1 (±1.3) | 18.1 (±1.8) | -26.1 | -5.2 |
| Asian/PI | 7.6 (±1.4) | 5.8 (±1.5) | 7.2 (±1.1) | 8.2 (±1.0) | 6.8 (±0.9) | -10.7 | -17.1 |
| Hispanic | 11.6 (±1.3) | 8.9 (±1.0) | 8.9 (±0.8) | 8.9 (±0.6) | 7.2 (±0.5) | -38.4 | -19.1 |
| Non-Hispanic White | 18.8 (±0.7) | 18.0 (±0.7) | 16.6 (±0.5) | 16.9 (±0.4) | 15.0 (±0.6) | -20.1 | -11.2 |

TABLE ENTRIES ARE STANDARDIZED (2002) PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1993, 1996, 1999, 2002

As for males, African American females had the highest smoking prevalence in all years. While higher percentages of males were smokers than females, regardless of race/ethnicity, in 2002 there were larger gender differences in smoking prevalence within Asian/Pis and Hispanics relative to African Americans and Non-Hispanic Whites.

Heavy Smoking Among Adults

Table 13.4

indicates that, in 2002, a much higher percentage of Non-Hispanic White smokers were heavy and moderate smokers than in other racial/ethnic groups. Compared with other racial/ethnic groups, higher percentages of

African Americans were light or moderate daily smokers, while higher percentages of Hispanics were non-daily smokers.

| Table 13.4 Adult Smoking Level in 2002 by Race/Ethnicity | | | | |
|---|---------------------------|------------------------------------|----------------------------|-------------------------------------|
| | Heavy (25+) N=481 % | Moderate (15-24) N=1728 % | Light (<15) N=1844 % | Non-Daily Smokers N=1445 % |
| Overall | 8.2 (±0.9) | 29.9 (±1.5) | 33.7 (±1.6) | 28.2 (±1.5) |
| Race/Ethnicity | | | | |
| African American | 3.4 (±2.3) | 23.5 (±4.3) | 51.6 (±5.5) | 21.5 (±4.7) |
| Asian/PI | 4.0 (±2.4) | 20.5 (±4.7) | 40.9 (±7.0) | 34.7 (±7.1) |
| Hispanic | 1.8 (±1.1) | 16.3 (±3.0) | 38.3 (±3.5) | 43.6 (±3.8) |
| Non-Hispanic White | 11.8 (±1.4) | 38.5 (±1.9) | 28.0 (±1.9) | 21.7 (±1.6) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 2002

Young Adults (18-29 years, Chapter 3)

Table 13.5 presents trends in standardized current smoking prevalence for young adults in different racial/ethnic groups. African American adults of all ages showed higher smoking prevalence rates than other racial/ethnic groups (presented above, and in Chapter 2). A different pattern was observed for young adults. In 1990, smoking prevalence was the same in African Americans as in Non-Hispanic White young adults. However, between 1990 and 1993, smoking prevalence for African Americans declined significantly by a factor of 41.6%, and was then significantly lower than for Non-Hispanic Whites and not

significantly different from other minority groups through 2002. This abrupt change among African Americans may be due to new groups of adolescents maturing to young adulthood as never smokers, less experimentation during young adulthood, or failure of experimenters to go on to become established smokers. Non-Hispanic Whites were the only group to show an increase between 1990 and 2002, but it was not statistically significant.

| Table 13.5 Current Smoking Prevalence In Racial/Ethnic Groups of Young Adults, 18-29 Years | | | | | | |
|---|-------------|-------------|-------------|-------------|-------------|-------------------------------|
| | 1990 | 1992 | 1996 | 1999 | 2002 | Factor Change 1990-2002 |
| | % | % | % | % | % | % |
| Overall | 18.2 (±1.0) | 16.1 (±1.0) | 17.0 (±0.8) | 18.7 (±0.7) | 17.0 (±0.7) | -6.6 |
| Race/Ethnicity | | | | | | |
| African American | 22.6 (±3.9) | 13.2 (±3.2) | 16.6 (±2.9) | 17.3 (±2.4) | 16.2 (±3.2) | -28.3 |
| Asian/Pi | 14.9 (±3.3) | 11.6 (±2.6) | 14.4 (±1.8) | 15.3 (±1.7) | 13.2 (±1.6) | -11.4 |
| Hispanic | 15.2 (±1.5) | 13.8 (±1.5) | 12.6 (±1.1) | 14.5 (±1.0) | 13.3 (±0.9) | -12.5 |
| Non-Hispanic White | 20.8 (±1.0) | 20.3 (±1.5) | 22.1 (±1.0) | 24.2 (±1.1) | 22.0 (±1.3) | 5.8 |

TABLE ENTRIES ARE STANDARDIZED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1992, 1996, 1999, 2002

2. Young Adult Uptake Patterns and Vulnerability to Smoking (Chapter 3)

Data presented in Section 1 (above) indicate high rates of current smoking among all African American adults, yet also showed a decline in smoking after 1990 among young adult African Americans. If these young African Americans were headed to high levels of smoking as older adults, it would be expected that they would be more represented than other groups among the susceptible never smokers (Table 13.6) and experimenters (Table 13.7). However, the data presented below do not support this hypothesis. Perhaps this generation of younger African Americans will escape the high levels of smoking seen among older generations.

Tables 13.6 through 13.9 look at the prevalence of each smoking-status category across racial/ethnic groups of young adults. They give the population prevalence for each category, so that the data in one table are related to the data in another. For instance, a group that is more represented among current smokers will likely be less represented among never smokers.

Young Adult Never Smokers by Susceptibility

Table 13.6 shows the smoking prevalence rates in the population of committed and susceptible never smokers. Significantly higher percentages of African Americans and the Asian/PI group (around 50%) were committed never smokers compared to Hispanics and Non-Hispanic Whites. Significantly fewer Non-Hispanic Whites were susceptible never smokers than in other groups.

| Table 13.6 Young Adult Never Smokers in Racial/Ethnic Groups by Susceptibility | | |
|---|-------------------|---------------------|
| | Committed Never % | Susceptible Never % |
| Overall | 39.5 (±1.2) | 3.9 (±0.5) |
| Race/Ethnicity | | |
| African American | 50.8 (±4.7) | 3.1 (±1.6) |
| Asian/PI | 48.4 (±3.8) | 4.8 (±1.7) |
| Hispanic | 40.7 (±1.9) | 5.2 (±0.9) |
| Non-Hispanic White | 34.3 (±1.8) | 2.1 (±0.5) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS
SOURCE: CTS 2002

Young Adult Experimenters by Current Smoking Status

Table 13.7 shows the population prevalence for the groups of experimenters in the different racial/ethnic subgroups. Hispanics were significantly more likely to be former experimenters susceptible to smoking again than other groups, and they were also more likely to have ceased experimenting in the past year than African Americans or the Asian/PI group. They were also significantly more likely to be current experimenters than Non-Hispanic Whites.

| Table 13.7 Young Adult Experimenters in Racial/Ethnic Groups by Current Smoking Status | | | | |
|---|----------------------|------------------------|------------|------------|
| | Former | | | Current |
| | > 1 Year Committed % | > 1 Year Susceptible % | < 1 Year % | % |
| Overall | 14.1 (±0.8) | 4.2 (±0.4) | 5.1 (±0.5) | 5.9 (±0.6) |
| Race/Ethnicity | | | | |
| African American | 14.0 (±3.1) | 2.3 (±1.4) | 2.8 (±1.4) | 5.8 (±2.2) |
| Asian/PI | 14.3 (±2.5) | 3.2 (±1.4) | 3.9 (±1.2) | 5.3 (±1.9) |
| Hispanic | 14.0 (±1.2) | 5.6 (±0.8) | 5.5 (±1.0) | 6.9 (±1.2) |
| Non-Hispanic White | 14.0 (±1.2) | 3.1 (±0.6) | 5.8 (±0.7) | 4.8 (±0.7) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 2002

Young Adult Current Established Smokers by Smoking Level

Table 13.8 shows the percentages of each racial/ethnic group of current established smokers in the population. Non-Hispanic Whites had significantly higher prevalences in all groups except the never-daily group, where prevalence was significantly higher for

Hispanics. Hispanics showed the lowest prevalence for daily smoking, particularly moderate-to-heavy (15+ cigarettes/day) daily smoking.

| Table 13.8 Young Adult Current Established Smokers in Racial/Ethnic Groups by Smoking Level | | | | |
|--|----------------------------|-----------------------------|------------------------------|-------------------------------|
| | Daily | | Non-Daily | |
| | 15+ Cigarettes/day % | < 15 Cigarettes/day % | Once Daily >6 Months % | Never Daily >6 Months % |
| Overall | 4.4 (00.5) | 6.6 (00.6) | 3.3 (00.4) | 4.1 (00.6) |
| Race/Ethnicity | | | | |
| African American | 3.0 (01.8) | 8.0 (02.9) | 2.1 (01.3) | 2.5 (01.7) |
| Asian/PI | 2.6 (01.2) | 6.5 (01.7) | 2.2 (01.0) | 2.6 (01.0) |
| Hispanic | 1.9 (00.6) | 4.7 (00.9) | 2.8 (00.5) | 5.0 (01.0) |
| Non-Hispanic White | 7.7 (01.1) | 8.2 (01.0) | 4.3 (00.8) | 3.8 (00.8) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 2002

Young Adult Former Established Smokers by Vulnerability to Relapse

Table 13.9 presents the percentages of former established smokers in the population for the racial/ethnic subgroups. Non-Hispanic Whites appeared to be more likely to be quit for a year or more and not vulnerable to relapse compared to African Americans and the Asian/PI group. They also appeared more likely to be recent quitters (in last year) than the Asian/PI group or Hispanics.

| Table 13.9 Young Adult Former Established Smokers in Racial/Ethnic Groups by Vulnerability to Relapse | | | |
|--|---|--------------------------------------|-----------------------|
| | Quit > 1 Year Not Vulnerable* % | Quit > 1 Year Vulnerable* % | Quit < 1 Year % |
| Overall | 3.7 (00.5) | 2.8 (00.4) | 2.5 (00.3) |
| Race/Ethnicity | | | |
| African American | 2.4 (02.0) | 1.1 (01.0) | 2.2 (01.4) |
| Asian/PI | 2.1 (00.9) | 2.6 (01.2) | 1.6 (00.9) |
| Hispanic | 3.6 (00.8) | 2.2 (00.5) | 1.9 (00.6) |
| Non-Hispanic White | 4.4 (00.6) | 3.8 (00.6) | 3.6 (00.6) |

*HAD A CIGARETTE IN LAST YEAR, THINKS ABOUT SMOKING OR SITUATION WHERE MIGHT SMOKE.

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 2002

3. Adolescent Smoking Behavior

This section presents data on adolescent (12-17 years) smoking prevalence and key measures of the smoking uptake process. The prevalence data are from Chapter 2 and the remaining information is from Chapter 7.

Adolescent Smoking Prevalence (Chapter 2)

Table 13.10 gives the standardized current smoking prevalence estimates for adolescents (12-17 years) in various racial/ethnic groups for each survey. Consistent

across survey years was a higher prevalence rate among Hispanic and Non-Hispanic White adolescents compared to African American and Asian/PI adolescents. Smoking prevalence declined considerably in all racial/ethnic groups, but it is worth noting that Non-Hispanic Whites, with the highest peak prevalence in 1996, showed the largest decline by 2002, by a factor of 58.3%.

| Table 13.10 Standardized (2002) Adolescent Current Smoking Prevalence by Race/Ethnicity | | | | | | | | |
|--|-------------|-------------|-------------|------------|------------|---------------------------------|---------------------------------|---------------------------------|
| | 1990 | 1993 | 1996 | 1999 | 2002 | Factor Increase 1993-1996 | Factor Decrease 1996-1999 | Factor Decrease 1999-2002 |
| | % | % | % | % | % | % | % | % |
| Overall | 8.8 (±1.0) | 8.6 (±1.2) | 11.3 (±1.1) | 7.6 (±0.7) | 5.0 (±0.7) | 31.4 | -32.7 | -34.2 |
| Race/Ethnicity | | | | | | | | |
| African American | 6.4 (±3.0) | 7.1 (±3.5) | 8.3 (±2.4) | 7.5 (±2.5) | 4.4 (±1.6) | 16.9 | -9.6 | -41.3 |
| Asian/PI | 5.3 (±2.8) | 6.1 (±4.5) | 8.6 (±2.5) | 5.0 (±2.1) | 3.7 (±1.6) | 41.0 | -41.9 | -26.0 |
| Hispanic | 8.9 (±2.1) | 7.0 (±1.8) | 10.6 (±1.9) | 7.6 (±1.3) | 5.0 (±1.4) | 51.4 | -28.3 | -34.2 |
| Non-Hispanic White | 10.7 (±1.3) | 11.7 (±1.3) | 13.9 (±1.1) | 8.6 (±1.2) | 5.8 (±0.9) | 18.8 | -38.1 | -32.6 |

TABLE ENTRIES ARE STANDARDIZED (2002) PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1990, 1993, 1996, 1999, 2002

Committed Never Smokers Who Have Never Been Curious About Smoking (Chapter 7)

Table 13.11 shows that from 1996 to 2002 all ethnic groups except for Asian/PIs showed a significant increase in the percentage of committed never smokers who had never been curious about smoking a cigarette. These rates were higher in 2002 than in 1999, but significantly higher only for Non-Hispanic Whites.

| Table 13.11 Committed Never Smokers who Have Never Been Curious about Smoking in Racial/Ethnic Groups of Adolescents 12-17 Years of Age | | | | |
|---|-------------|-------------|-------------|--------------------------------------|
| | 1996 % | 1999 % | 2002 % | Factor Increase 1996-2002 % |
| Overall | 23.3 (±1.2) | 28.4 (±1.1) | 32.2 (±1.2) | 38.2 |
| Race/Ethnicity | | | | |
| African American | 28.5 (±4.4) | 36.6 (±4.4) | 39.6 (±5.3) | 38.9 |
| Asian/PI | 25.4 (±3.7) | 27.3 (±4.8) | 30.0 (±5.0) | 18.1 |
| Hispanic | 20.6 (±2.1) | 25.0 (±1.7) | 27.6 (±2.0) | 34.0 |
| Non-Hispanic White | 23.8 (±1.5) | 30.0 (±1.5) | 36.9 (±2.0) | 55.0 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1996, 1999, 2002

Ever Smoking (Chapter 7)

Since 1990, ever smoking has decreased steadily among 12- to 14-year-old Californians in all racial/ethnic groups (Table 13.12), with all groups significantly lower in 2002 than in 1996. The decline increased markedly across all racial/ethnic subgroups, except

Hispanics, between 1996 and 1999, and continued through 2002. Non-Hispanic White and Hispanic adolescents exhibited the highest ever smoking rates across all racial/ethnic groups in all survey years. The only difference to reach statistical significance in 2002 was that between Asian/Pacific Islanders and Hispanics (3.5 \pm 2.2% vs. 9.7 \pm 2.1%).

| Table 13.12 Ever Smoking in Racial/Ethnic Groups of 12- to 14-Year-Olds | | | | | | |
|--|------------|------------|------------|------------|-----------|---------------------------------|
| | 1990 | 1993 | 1996 | 1999 | 2002 | Factor Decrease 1996-2002 |
| | % | % | % | % | % | % |
| Overall | 22.7 (2.5) | 22.1 (2.1) | 19.7 (1.7) | 14.8 (1.5) | 8.0 (1.1) | -59.2 |
| Race/Ethnicity | | | | | | |
| African American | 17.0 (5.4) | 19.7 (6.7) | 16.2 (5.5) | 11.2 (4.1) | 5.5 (2.6) | -66.0 |
| Asian/PI | 15.0 (6.9) | 11.2 (4.6) | 13.9 (4.3) | 8.3 (4.8) | 3.5 (2.2) | -74.8 |
| Hispanic | 22.7 (2.1) | 23.3 (4.1) | 18.6 (2.9) | 17.5 (3.1) | 9.7 (2.1) | -47.8 |
| Non-Hispanic White | 26.3 (2.3) | 23.1 (2.8) | 21.6 (2.2) | 14.8 (1.4) | 8.2 (1.8) | -62.0 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1993, 1996, 1999, 2002

The trends in ever smoking among racial/ethnic groups of 15- to 17-year-olds are presented in **Table 13.13**. The decline in ever smoking among these older adolescents over the study period (1990-2002) was considerably less than that observed in the 12- 14-year-old adolescents. Nonetheless, it was significant in all groups even between 1996 and 2002. In 2002, among different racial/ethnic groups, there were significant differences in ever smoking, with both African Americans (21.6 \pm 7.5%) and Asian/Pis (24.1 \pm 5.0%) being less likely to have smoked than Non-Hispanic Whites (32.8 \pm 2.8%).

| Table 13.13 Ever Smoking in Racial/Ethnic Groups of 15- to 17-Year-Olds | | | | | | |
|--|-------------|-------------|------------|------------|------------|---------------------------------|
| | 1990 | 1993 | 1996 | 1999 | 2002 | Factor Decrease 1996-2002 |
| | % | % | % | % | % | % |
| Overall | 50.9 (2.8) | 49.1 (2.2) | 48.8 (2.3) | 40.0 (2.5) | 31.2 (1.7) | -36.1 |
| Race/Ethnicity | | | | | | |
| African American | 46.5 (5.4) | 36.5 (10.9) | 42.8 (6.6) | 31.7 (6.4) | 21.6 (7.5) | -48.5 |
| Asian/PI | 36.3 (6.9) | 35.3 (9.7) | 35.8 (6.6) | 30.5 (6.2) | 24.1 (5.0) | -32.7 |
| Hispanic | 50.2 (12.1) | 48.6 (6.0) | 49.8 (3.8) | 40.1 (4.1) | 33.2 (5.0) | -33.3 |
| Non-Hispanic/White | 54.6 (2.5) | 53.5 (3.2) | 52.3 (3.3) | 44.7 (2.9) | 32.8 (2.8) | -37.3 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1993, 1996, 1999, 2002

Established Smokers (Chapter 7)

Adolescents who report smoking at least 100 cigarettes in their lifetime are considered established smokers. Because very few adolescents under 15 years of age have progressed

to established smoking, **Table 13.14** shows the percentage of established smokers in demographic groups of 15- to 17-year-olds.

| Table 13.14 Established Smoking in Racial/Ethnic Groups of 15- to 17-Year-Olds | | | | | | |
|---|-------------|-------------|-------------|-------------|------------|---------------------------------|
| | 1990 | 1993 | 1996 | 1999 | 2002 | Factor Decrease 1996-2002 |
| | % | % | % | % | % | % |
| Overall | 10.5 (±1.6) | 9.9 (±1.5) | 12.1 (±1.4) | 8.0 (±1.1) | 4.6 (±0.6) | -62.0 |
| Race/Ethnicity | | | | | | |
| African American | 4.6 (±5.4) | 2.5 (±2.7) | 5.7 (±3.5) | 4.0 (±3.0) | 3.0 (±2.4) | -47.4 |
| Asian/PI | 7.6 (±6.9) | 6.9 (±7.6) | 8.3 (±3.4) | 5.4 (±3.0) | 3.0 (±1.6) | -63.9 |
| Hispanic | 7.0 (±2.1) | 6.1 (±1.8) | 8.1 (±2.0) | 6.0 (±1.3) | 2.6 (±1.0) | -67.9 |
| Non-Hispanic White | 14.4 (±2.3) | 13.7 (±2.0) | 16.2 (±1.9) | 11.1 (±1.8) | 7.3 (±1.6) | -54.9 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1993, 1996, 1999, 2002

Established smoking increased in all groups in 1996, but declined by 1999, and continued decreasing through 2002 in all ethnic groups. The decline between 1996 and 2002 was significant for all groups except African Americans, who had the lowest rate of established smoking in 1996. Unless something happens to spur adolescent smoking in the future, the low rates of established smoking among 15- to 17-year-old adolescents across all racial/ethnic groups should signify a decline in adult smoking prevalence in the future.

Trends in Important Antecedents of Adolescent Smoking (Chapter 7)

Table 13.15 presents the trends among racial/ethnic groups of adolescents who reported having best friends who smoke. The increase in adolescents' reports of having best friends who smoke from 1990 to 1996 and the subsequent decline occurred in all racial/ethnic groups. In 2002, Hispanics were significantly more likely to report having a best friend who smoked than were Asian/PIs or Non-Hispanic Whites; there were no significant differences in previous years.

| Table 13.15 Adolescent Never Smokers Who Have Friends Who Smoke in Racial/Ethnic Groups | | | | | |
|--|-------------|-------------|-------------|-------------|-------------|
| | 1990 | 1999 | 1996 | 1999 | 2002 |
| | % | % | % | % | % |
| Overall | 25.9 (±1.9) | 31.3 (±1.9) | 44.9 (±1.8) | 37.0 (±1.5) | 26.5 (±1.2) |
| Race/Ethnicity | | | | | |
| African American | 25.0 (±9.1) | 27.0 (±7.7) | 48.1 (±5.8) | 44.0 (±4.8) | 28.5 (±5.5) |
| Asian/PI | 20.3 (±6.0) | 25.0 (±5.9) | 46.9 (±5.1) | 34.1 (±6.2) | 21.3 (±3.5) |
| Hispanic | 27.2 (±4.0) | 34.7 (±4.1) | 45.6 (±3.0) | 38.8 (±3.0) | 29.6 (±2.3) |
| Non-Hispanic White | 26.4 (±2.7) | 31.1 (±2.6) | 43.1 (±2.3) | 35.0 (±2.5) | 24.2 (±1.8) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1993, 1996, 1999, 2002

Table 13.16 presents the trends across racial/ethnic groups of adolescents who reported that their peers care about staying off cigarettes. As would be expected, trends in these proportions reflect the trends in the previous table on reports of best friends who smoke.

In 2002, Hispanics were significantly less likely than were Non-Hispanic Whites to report that their peers cared about staying off cigarettes. Of all ethnic groups presented, African Americans were least likely and Asian/PIs and Hispanics were most likely to report that their peers cared about staying off cigarettes, though these differences were not significant.

| Table 13.16 Adolescent Never Smokers Who Report that Their Peers Cared About Staying Off Cigarettes in Racial/Ethnic Groups | | | | | |
|--|-------------|-------------|-------------|-------------|-------------|
| | 1990 % | 1993 % | 1996 % | 1999 % | 2002 % |
| Overall | 73.8 (±1.9) | 57.8 (±2.3) | 46.8 (±1.5) | 59.7 (±1.7) | 65.5 (±1.7) |
| Race/Ethnicity | | | | | |
| African American | 67.3 (±9.1) | 48.4 (±9.2) | 38.3 (±6.0) | 53.4 (±6.6) | 53.8 (±7.1) |
| Asian/PI | 78.5 (±5.2) | 63.1 (±7.8) | 56.0 (±5.8) | 69.6 (±6.1) | 71.5 (±4.9) |
| Hispanic | 70.4 (±3.9) | 57.4 (±4.5) | 41.4 (±3.3) | 51.4 (±2.8) | 62.7 (±2.8) |
| Non-Hispanic White | 76.6 (±2.5) | 59.0 (±3.3) | 50.2 (±2.3) | 65.5 (±2.6) | 69.2 (±2.4) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1993, 1996, 1999, 2002

4. Protection of Nonsmokers from Secondhand Smoke (Chapter 6)

Smoke-free Workplaces

Table 13.17 presents the percentage of indoor workers within racial/ethnic groups reporting that their workplace was smoke-free. In 1990 and 1992 there were significant racial/ethnic disparities in reporting of a smoke-free workplace that have largely disappeared in recent years. However, Hispanics remain slightly less likely to report a smoke-free workplace in 2002, with the difference significant when compared to Non-Hispanic Whites

| Table 13.17 Indoor Workers Reporting Smoke-free Workplaces in Racial/Ethnic Groups | | | | | | |
|---|-------------|-------------|-------------|-------------|-------------|--------------------------------------|
| | 1990 % | 1992 % | 1996 % | 1999 % | 2002 % | Factor Increase 1996-2002 % |
| Overall | 35.0 (±1.3) | 46.3 (±2.0) | 90.5 (±0.9) | 93.4 (±0.8) | 95.4 (±0.8) | 5.4 |
| Race/Ethnicity | | | | | | |
| African American | 42.3 (±7.9) | 45.9 (±8.3) | 92.1 (±6.5) | 94.0 (±3.5) | 96.2 (±1.3) | 4.5 |
| Asian/PI | 33.0 (±5.5) | 43.9 (±8.8) | 91.5 (±4.1) | 94.1 (±2.8) | 95.3 (±3.6) | 4.1 |
| Hispanic | 25.8 (±2.9) | 30.5 (±4.3) | 87.8 (±2.6) | 91.1 (±2.2) | 93.7 (±1.9) | 6.7 |
| Non-Hispanic/White | 37.9 (±1.7) | 51.8 (±2.3) | 91.3 (±1.7) | 94.3 (±0.8) | 96.4 (±0.8) | 5.6 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1992, 1996, 1999, 2002

Exposure of Indoor Workers to Secondhand Smoke

Table 13.18 presents the percentage of non-smoking indoor workers within racial/ethnic groups exposed to someone smoking in their work area in the past two weeks. All groups have shown major declines in exposure from 1990 to 2002. In all years, Hispanics were significantly more likely to report exposure compared to Non-Hispanic Whites.

| Table 13.18 | | | | | | |
|---|-------------|-------------|-------------|-------------|-------------|-------------------------|
| Exposure of Non-smoking Indoor Workers to Secondhand Smoke in Racial/Ethnic Groups | | | | | | |
| | 1990 | 1993 | 1996 | 1999 | 2002 | Factor Change 1990-2002 |
| | % | % | % | % | % | % |
| Overall | 29.1 (±1.7) | 22.5 (±1.3) | 11.8 (±1.4) | 15.6 (±1.4) | 12.0 (±1.0) | -58.8 |
| Race/Ethnicity | | | | | | |
| African American | 22.8 (±7.3) | 19.4 (±4.4) | 7.9 (±5.1) | 15.3 (±5.7) | 9.5 (±2.3) | -58.3 |
| Asian/PI | 27.8 (±5.6) | 26.4 (±5.2) | 11.6 (±3.9) | 19.7 (±7.4) | 11.3 (±3.4) | -59.4 |
| Hispanic | 39.8 (±4.8) | 32.2 (±3.8) | 19.6 (±3.8) | 20.4 (±3.0) | 15.6 (±2.5) | -60.8 |
| Non-Hispanic White | 26.0 (±1.8) | 19.0 (±1.4) | 8.9 (±1.6) | 12.4 (±1.4) | 10.4 (±1.3) | -60.0 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1993, 1996, 1999, 2002

Table 13.19 presents the racial/ethnic data on secondhand smoke exposure for non-smoking indoor workers from the 2002 CTS, and shows the percentage exposed on a daily basis together with the percentage this represents of the group with any exposure in the past 2 weeks. While this analysis is not based on statistical analyses,

African Americans were less exposed in general, but a larger fraction of those exposed were exposed on a daily basis compared to other groups.

| Table 13.19 | | | |
|--|---------------------------|-----------------|-------------------|
| Frequency of Exposure of Nonsmokers by Race/Ethnicity in 2002 | | | |
| | Exposed in Last 2 Weeks % | Exposed Daily % | Ratio Daily : Any |
| Overall | 11.9 (±1.0) | 7.7 (±0.7) | 64.7 |
| Race/Ethnicity | | | |
| African American | 9.4 (±2.3) | 7.3 (±2.2) | 77.7 |
| Asian/PI | 11.2 (±3.3) | 7.4 (±2.4) | 66.1 |
| Hispanic | 15.4 (±2.4) | 10.0 (±2.2) | 64.9 |
| Non-Hispanic White | 10.4 (±1.3) | 6.4 (±1.0) | 61.5 |

ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 2002

Table 13.20 shows the percentages of adults, by race/ethnicity, reporting that their homes were completely smoke-free. In 1990, Hispanics were more likely to report smoke-free homes compared to Non-Hispanic Whites. By 2002, about 75% of all ethnic groups, except Non-Hispanic Whites, reported smoke-free homes. African Americans reported lower rates in each survey year, and in 2000, their rate was significantly lower than the other racial/ethnic groups. The increases between 1996 and 2002 were significant for each racial/ethnic group.

| Table 13.20 Total Household Bans on Smoking by Race/Ethnicity | | | | | | |
|--|-------------|-------------|-------------|-------------|-------------|---------------------------------|
| | 1992 | 1993 | 1996 | 1999 | 2002 | Factor Increase 1996-2002 |
| | % | % | % | % | % | % |
| Overall | 48.1 (±1.9) | 50.9 (±0.9) | 63.7 (±0.4) | 72.8 (±1.1) | 76.9 (±0.9) | 20.7 |
| Race/Ethnicity | | | | | | |
| African American | 46.4 (±7.0) | 47.1 (±3.1) | 56.6 (±2.2) | 68.5 (±3.7) | 72.9 (±2.6) | 28.8 |
| Asian/PI | 49.2 (±6.0) | 60.1 (±3.2) | 68.2 (±2.1) | 71.3 (±3.5) | 79.5 (±3.1) | 16.6 |
| Hispanic | 53.1 (±4.0) | 57.1 (±2.1) | 72.7 (±1.2) | 78.0 (±1.9) | 78.1 (±1.8) | 7.4 |
| Non-Hispanic White | 46.3 (±2.0) | 48.2 (±1.0) | 60.3 (±0.7) | 71.3 (±1.1) | 76.6 (±1.2) | 27.0 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1992, 1993, 1996, 1999, 2002

Table 13.21 shows that the protection of children and adolescents has increased in all racial/ethnic groups, although the changes between 1999 and 2002 were negligible. The increases from 1996 to 2002 were significant for all groups except Hispanics. While the African Americans showed lower rates of protection than other racial/ethnic groups, the gap has decreased somewhat.

| Table 13.21 Protection from Secondhand Smoke at Home for Children and Adolescents by Race/Ethnicity | | | | | |
|---|-------------|-------------|-------------|-------------|---------------------------------|
| | 1993 | 1996 | 1999 | 2002 | Factor Increase 1996-2002 |
| | % | % | % | % | % |
| Overall | 77.1 (±1.4) | 86.3 (±0.9) | 89.5 (±0.9) | 90.2 (±0.9) | 4.5 |
| Race/Ethnicity | | | | | |
| African American | 71.3 (±5.8) | 78.4 (±4.3) | 85.0 (±4.8) | 85.7 (±2.4) | 9.3 |
| Asian/PI | 84.5 (±4.7) | 88.3 (±4.6) | 92.2 (±3.5) | 94.3 (±2.0) | 6.8 |
| Hispanic | 83.5 (±2.3) | 91.1 (±1.4) | 93.3 (±1.2) | 91.5 (±1.3) | 0.0 |
| Non-Hispanic White | 73.6 (±1.7) | 83.6 (±1.2) | 86.6 (±1.3) | 89.1 (±1.1) | 6.5 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

Source: CTS 1993, 1996, 1999, 2002

Reaction to Secondhand Smoke Exposure

Table 13.22 shows racial/ethnic differences in nonsmokers' reactions to exposure to someone smoking in settings where smoking is prohibited. Respondents answered all three questions with responses of: very often, often, sometimes, or rarely. Note that the often and very often responses were combined for two of the three questions. Hispanics were less likely than other racial/ethnic groups to ask a smoker not to smoke or move away or to move away themselves very often. They were more likely to answer rarely to all three questions. The Asian/PI group was significantly more likely to put up with someone smoking very often or often than other racial/ethnic groups.

| Table 13.22 Nonsmokers Responses to Secondhand Smoke in Situations Where Smoking Is Not Allowed by Race/Ethnicity | | | |
|--|---|---------------------------------------|---|
| | Ask Smoker Not to Smoke- Very Often % | Move Away- Very Often % | Put Up With It- Very Often or Often % |
| Overall | 22.4 (±1.1) | 34.5 (±1.2) | 16.4 (±1.1) |
| Race/Ethnicity | | | |
| African American | 27.0 (±2.6) | 38.4 (±3.4) | 13.2 (±2.8) |
| Asian/PI | 22.5 (±3.6) | 40.8 (±4.3) | 28.4 (±5.2) |
| Hispanic | 17.0 (±1.7) | 30.2 (±2.4) | 12.4 (±1.3) |
| Non-Hispanic White | 25.1 (±1.3) | 35.4 (±1.8) | 16.2 (±1.4) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 2002

Should Smoking Be Allowed in Venues Where It Is Not Currently Prohibited?

Table 13.23 shows the percentages of Californians within racial/ethnic groups indicating that smoking should be banned in venues where it is currently not prohibited. In general, support for these smoke-free venues was greater among minorities, particularly Hispanics, than Non-Hispanic Whites. Support for smoke-free outdoor public places was especially higher among Hispanics than other racial/ethnic groups.

| Table 13.23 Percentages Stating That Smoking Should Be Banned in Various Venues not Currently Covered by Smoking Restrictions by Race/Ethnicity | | | | | | | | | | | |
|--|--------------------------------|-----------------------|---------------------------|----------------------------------|---------------------------------|-------------------------------------|-----------------------------|--------------------------------|-------------|----------------|---------------------------|
| | Outdoor Places / Loading Docks | Outdoor Public Places | Kids' Play Yards / Fields | Outdoor Restaurant Dining Patios | Outdoor Bar/ Club Patron Patios | Just Outside Entrances to Buildings | Common Areas of Apt / Condo | Common Areas of Hotels/ Motels | Hotel Rooms | Indian Casinos | On-Campus Student Housing |
| Overall | 42.7 (±1.2) | 52.3 (±1.2) | 90.5 (±0.6) | 62.5 (±1.1) | 39.7 (±1.2) | 62.7 (±1.2) | 87.1 (±0.8) | 88.8 (±0.5) | 65.7 (±1.2) | 60.1 (±1.2) | 79.2 (±0.7) |
| Race/Ethnicity | | | | | | | | | | | |
| African American | 42.9 (±2.5) | 48.2 (±3.1) | 91.8 (±1.7) | 57.2 (±2.9) | 38.7 (±2.4) | 64.4 (±2.4) | 85.0 (±1.8) | 88.4 (±1.7) | 56.5 (±2.9) | 62.1 (±2.4) | 76.6 (±2.4) |
| Asian/PI | 44.8 (±3.4) | 55.5 (±3.7) | 93.1 (±2.2) | 56.6 (±4.2) | 38.0 (±3.8) | 61.9 (±3.7) | 89.5 (±2.5) | 91.6 (±1.8) | 71.4 (±3.7) | 62.2 (±3.7) | 84.0 (±2.6) |
| Hispanic | 56.3 (±2.4) | 64.9 (±2.5) | 94.8 (±1.1) | 72.0 (±1.9) | 48.1 (±2.5) | 75.9 (±1.7) | 91.9 (±0.9) | 92.0 (±1.0) | 78.5 (±1.8) | 68.7 (±2.0) | 88.9 (±1.2) |
| Non-Hisp.White | 34.6 (±1.2) | 44.9 (±1.4) | 87.1 (±0.9) | 59.8 (±1.2) | 36.5 (±1.3) | 55.0 (±1.5) | 84.3 (±1.0) | 86.5 (±0.9) | 58.8 (±1.4) | 54.7 (±1.8) | 73.2 (±1.1) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 2002

5. Smoking Cessation (Chapter 8)

As mentioned in Chapter 8, addiction level and quitting history are important behavioral predictors of future smoking, and it is important to monitor them over time across racial/ethnic groups. Many smokers reduce their consumption as a prelude to making a cessation attempt (Fiore et al., 1990). While lighter smokers are more successful in quitting than heavier smokers, Farkas (1999) showed that smokers who tapered to fewer than 15 cigarettes per day showed a cessation advantage. Since many of the major changes occurred by 1996, after the law banning smoking in indoor workplaces was implemented, changes in the adaptation of smokers since then are of primary interest. Thus, most of the tables in this section show change between 1996 and 2002.

California Smokers in Racial/Ethnic Subgroups Smoking <15 Cigarettes a Day

The percentage of smokers smoking fewer than 15 cigarettes/day increased markedly between 1992 and 1996, following the implementation of the law banning smoking in indoor work areas in 1995. Changes since then are highlighted in the tables. **Table 13.24** shows the percentage of light smokers for each racial/ethnic group of current smokers.

| Table 13.24 Percentage of California Smokers in Racial/Ethnic Groups Smoking <15Cigs/day | | | | | | |
|---|--------------|--------------|-------------|-------------|-------------|---------------------------------|
| | 1990 | 1992 | 1996 | 1999 | 2002 | Factor Increase 1996-2002 |
| | % | % | % | % | % | % |
| Overall | 43.6 (±1.7) | 44.1 (±3.7) | 55.1 (±1.4) | 59.4 (±1.7) | 61.5 (±1.5) | 11.6 |
| Race/Ethnicity | | | | | | |
| African American | 64.7 (±6.4) | 65.5 (±7.3) | 69.6 (±4.0) | 76.3 (±4.7) | 71.7 (±4.7) | 3.0 |
| Asian/PI | 59.6 (±10.4) | 60.6 (±12.2) | 67.2 (±6.4) | 71.9 (±6.5) | 75.2 (±5.3) | 11.9 |
| Hispanic | 73.0 (±3.3) | 70.7 (±6.0) | 80.7 (±2.8) | 81.5 (±2.6) | 81.7 (±3.0) | 1.2 |
| Non-Hispanic White | 32.0 (±1.5) | 34.0 (±3.2) | 42.7 (±1.7) | 46.8 (±2.3) | 49.3 (±1.9) | 15.5 |

TABLE ENTRIES ARE WEIGHTED (2002) PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1990, 1992, 1996, 1999, 2002

Racial/ethnic minorities, particularly Hispanics, were significantly more likely to be light smokers in each year than Non-Hispanic Whites. However, the percentage of Non-Hispanic White smokers who are light smokers had increased significantly in 2002 compared to 1996.

Smokers in the Last Year Who Made a Quit Attempt of 1 or More Days

Table 13.25 shows the percentages of racial/ethnic groups of smokers in the last year with a quit attempt lasting for a day or longer in the past year.

| Table 13.25 Percentages of Smokers in the Last Year Who Made a Quit Attempt of One or More Days by Race/Ethnicity | | | | | | |
|--|-------------|--------------|-------------|-------------|-------------|---------------------------------|
| | 1990 | 1992 | 1996 | 1999 | 2002 | Factor Increase 1996-2002 |
| | % | % | % | % | % | % |
| Overall | 48.9 (∓1.5) | 38.1 (∓2.0) | 56.0 (∓1.1) | 61.5 (∓1.5) | 62.1 (∓1.2) | 10.9 |
| Race/Ethnicity | | | | | | |
| African American | 59.0 (∓6.8) | 45.6 (∓7.8) | 62.3 (∓5.5) | 70.6 (∓5.5) | 65.1 (∓5.4) | 4.5 |
| Asian/PI | 51.1 (∓8.6) | 46.0 (∓11.8) | 59.3 (∓5.1) | 65.5 (∓5.3) | 67.0 (∓5.5) | 13.0 |
| Hispanic | 57.7 (∓4.7) | 39.2 (∓7.6) | 66.4 (∓2.7) | 67.3 (∓3.5) | 73.0 (∓3.2) | 9.9 |
| Non-Hispanic White | 45.1 (∓1.4) | 36.1 (∓3.1) | 51.0 (∓1.4) | 58.0 (∓1.8) | 55.9 (∓1.0) | 9.6 |

TABLE ENTRIES ARE WEIGHTED (2002) PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1992, 1996, 1999, 2002

Except for 1992, racial/ethnic minorities had significantly higher quit attempt rates than Non-Hispanic Whites. Hispanics and Non-Hispanic White smokers showed significant increases in one-day attempts between 1996 and 2002.

Smokers in the Last Year Who Made a Quit Attempt of 1 Week or More

Table 13.26 shows the percentage of smokers who stayed off for at least a week on their longest quit attempt in the last year.

| Table 13.26 Percentages of Smokers in the Last Year Who Made a Quit Attempt of One Week or More by Race/Ethnicity | | | | | | |
|--|-------------|-------------|-------------|-------------|-------------|-------------------------------|
| | 1990 | 1992 | 1996 | 1999 | 2002 | Factor Change 1996-2002 |
| | % | % | % | % | % | % |
| Overall | 29.2 (∓1.4) | 25.1 (∓2.5) | 36.1 (∓1.3) | 41.4 (∓1.4) | 40.5 (∓1.5) | 4.4 |
| Race/Ethnicity | | | | | | |
| African American | 33.8 (∓6.2) | 26.6 (∓5.9) | 32.6 (∓3.8) | 46.7 (∓5.4) | 39.2 (∓5.0) | 20.2 |
| Asian/PI | 26.3 (∓7.1) | 32.7 (∓9.5) | 42.3 (∓5.4) | 45.2 (∓6.2) | 41.9 (∓6.4) | -0.9 |
| Hispanic | 39.0 (∓4.3) | 29.6 (∓7.2) | 48.0 (∓3.3) | 48.6 (∓3.8) | 50.9 (∓3.6) | 6.0 |
| Non-Hispanic White | 26.3 (∓1.3) | 22.8 (∓3.6) | 31.8 (∓1.3) | 38.1 (∓1.6) | 36.0 (∓1.6) | 13.2 |

TABLE ENTRIES ARE WEIGHTED (2002) PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1992, 1996, 1999, 2002

Hispanic smokers were more likely than Non-Hispanic Whites to stay off for a week or longer in all years, but Non-Hispanic Whites showed a significant increase between 1996 and 2002, and consistently lower levels than all racial/ethnic minorities in all years.

Smokers Who May Never Quit

Table 13.27 shows the percentage of current smokers who never expect to quit smoking. Non-Hispanic White smokers were more likely to say they never expect to quit than other racial/ethnic groups, but only significantly more likely than African American and Hispanic smokers. The increases between 1996 and 2002 for the African-Americans and Asian/PI groups were not statistically significant.

| Table 13.27 Smokers > 25 Years of Age Who Never Expect to Quit by Race/Ethnicity | | | | |
|---|-------------|-------------|-------------|-------------------------------|
| | 1996 | 1999 | 2002 | Factor Change 1999-2002 |
| | % | % | % | % |
| Overall | 10.0 (∂1.0) | 9.2 (∂1.2) | 8.2 (∂1.1) | -18.0 |
| Race/Ethnicity | | | | |
| African American | 4.6 (∂1.8) | 2.9 (∂2.1) | 3.6 (∂2.2) | 21.7 |
| Asian/PI | 7.3 (∂3.2) | 8.9 (∂3.3) | 10.6 (∂7.0) | 45.2 |
| Hispanic | 7.1 (∂1.7) | 6.9 (∂2.2) | 5.2 (∂1.5) | -26.8 |
| Non-Hispanic White | 11.8 (∂1.2) | 11.0 (∂1.4) | 9.4 (∂1.0) | -20.3 |

TABLE ENTRIES ARE WEIGHTED (2002) PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1996, 1999, 2002

The Role of Workplace and Home Smoking Bans

Table 13.28 shows the percentages of smokers with smoking bans both at their workplace and at home.

| Table 13.28 Smokers Both Working and Living with Complete Bans on Smoking by Race/Ethnicity | | | | | |
|--|------------|-------------|-------------|-------------|-------------------------------|
| | 1992 | 1996 | 1999 | 2002 | Factor Change 1996-2002 |
| | % | % | % | % | % |
| Overall | 3.0 (∂0.7) | 18.0 (∂1.1) | 23.7 (∂1.2) | 24.1 (∂1.4) | 33.9 |
| Race/Ethnicity | | | | | |
| African American | 2.4 (∂2.3) | 12.4 (∂4.3) | 20.2 (∂5.8) | 16.8 (∂3.9) | 35.5 |
| Asian/PI | 6.4 (∂4.4) | 23.4 (∂5.6) | 33.4 (∂7.4) | 35.1 (∂6.1) | 50.0 |
| Hispanic | 3.1 (∂1.7) | 26.2 (∂3.6) | 30.4 (∂2.9) | 25.8 (∂3.5) | -1.5 |
| Non-Hispanic White | 2.9 (∂0.9) | 15.6 (∂0.8) | 20.9 (∂1.4) | 23.1 (∂1.8) | 48.1 |

TABLE ENTRIES ARE WEIGHTED (2002) PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1992, 1996, 1999, 2002

In 2002, Asian/PI smokers were significantly more likely than Non-Hispanic Whites or African American to have smoking bans both at work and at home, and this group showed a significant increase, by a factor of 50%, between 1996 and 2002. African American smokers were least likely to have dual bans. Hispanics are less protected at work and

more likely to be protected at home (see Chapter 6), and did not show a significant change between 1996 and 2002. However, Non-Hispanic White smokers did show a significant increase over that period.

Smoking Cessation Assistance

Table 13.29 presents the percentages of smokers in the last year in different racial/ethnic subgroups who used nicotine replacement therapy (NRT) for their most recent quit attempt.

| Table 13.29 Use of Nicotine Replacement for Most Recent Quit Attempt Among Smokers in the Last Year by Race/Ethnicity | | | | | |
|--|------------|-------------|-------------|-------------|-------------------------|
| | 1992 | 1996 | 1999 | 2002 | Factor Change 1996-2002 |
| | % | % | % | % | % |
| Overall | 9.3(±1.8) | 12.7 (±1.1) | 14.3 (±1.3) | 15.7 (±1.3) | 23.6 |
| Race/Ethnicity | | | | | |
| African American | 6.3(±4.4) | 7.7 (±4.9) | 9.8 (±3.8) | 14.1 (±5.2) | 83.3 |
| Asian/PI | 3.0(±3.7) | 10.4 (±9.8) | 9.8 (±6.9) | 17.9 (±7.3) | 72.1 |
| Hispanic | 2.9(±2.3) | 5.7 (±2.1) | 6.6 (±2.5) | 5.4 (±1.5) | -5.3 |
| Non-Hispanic White | 11.9(±2.4) | 16.5 (±2.5) | 19.5 (±1.7) | 21.2 (±1.9) | 28.5 |

TABLE ENTRIES ARE WEIGHTED (2002) PERCENTAGES AND 95% CONFIDENCE LIMITS.
 SOURCE: CTS 1992, 1996, 1999, 2002

In 1996 and 1999, Non-Hispanic White quitters were significantly more likely to have used NRT, but Asian/PI smokers made significant gains by 2002 so that the difference between these groups was no longer significant. While other ethnic groups also made gains during this period, they were not statistically significant. Hispanics were the least likely to use NRT for their most recent quit attempt in every year, and the difference was significant between Hispanics and every other group in 2002. However, many Hispanic smokers are light smokers, so they may feel less need to use NRT.

Physician Advice and Referral for Smoking Cessation

Table 13.30 gives the percentages of smokers in the last year who were advised by their physician to quit during a visit to their physician in the last year or in the year before they quit.

| Table 13.30 Physician Advice to Quit Among Smokers in the Last Year with One or more Visits to a Physician in the Last Year by Race/Ethnicity | | | | | | |
|--|-------------|--------------|--------------|-------------|-------------|-------------------------------|
| | 1990 | 1992 | 1996 | 1999 | 2002 | Factor Change 1996-1999 |
| | % | % | % | % | % | % |
| Overall | 39.9 (±1.7) | 47.3 (±3.2) | 50.5 (±1.8) | 53.2 (±2.1) | 57.2 (±2.0) | 13.3 |
| Race/Ethnicity | | | | | | |
| African American | 45.9 (±8.0) | 44.8 (±11.9) | 55.5 (±10.8) | 53.3 (±7.2) | 65.1 (±6.0) | 17.3 |
| Asian/PI | 44.9 (±9.4) | 37.2 (±13.9) | 58.3 (±14.2) | 49.9 (±8.5) | 57.2 (±9.2) | -1.9 |
| Hispanic | 29.9 (±7.0) | 40.3 (±11.5) | 38.6 (±4.4) | 45.1 (±4.6) | 47.8 (±5.1) | 23.8 |
| Non-Hispanic White | 40.8 (±1.7) | 50.0 (±3.4) | 49.9 (±4.1) | 56.1 (±1.9) | 60.1 (±2.1) | 20.4 |

TABLE ENTRIES ARE WEIGHTED (2002) PERCENTAGES AND 95% CONFIDENCE LIMITS.
 SOURCE: CTS 1990, 1992, 1996, 1999, 2002

Hispanic smokers were the least likely to be advised to quit by their physicians, again perhaps because they are less likely to be moderate-to-heavy smokers, and the difference between that group and Non-Hispanic White smokers was significant in 1990, 1996, 1999, and 2002. The gain for Hispanics between 1996 and 2002, by a factor of 23.8%, was also significant. While it appears that African American smokers are being advised more in recent years, the difference is only significant when compared to Hispanics in 2002.

6. Price Sensitivity and Taxes (Chapter 9)

Average Price per Pack Bought by California Smokers

Table 13.31 shows the self-reported average price per pack of cigarettes paid by smokers in different racial/ethnic groups.

Racial/ethnic minorities paid significantly more for a pack

of cigarettes than Non-Hispanic Whites across all survey years. Some of these differences may be due in part to cigarette consumption level and, in part, to the types of stores patronized. Higher consumption leads smokers to seek out less expensive retail outlets.

| Table 13.31 Average Price per Pack Bought by California Smokers by Race/Ethnicity (2002\$) | | | | |
|---|--------------|--------------|--------------|-------------------------------|
| | 1996 | 1999 | 2002 | Factor Change 1999-2002 |
| | \$ | \$ | \$ | % |
| Overall | 2.21 (±0.02) | 3.53 (±0.02) | 3.84 (±0.02) | 8.8 |
| Race/Ethnicity | | | | |
| African American | 2.27 (±0.04) | 3.62 (±0.09) | 3.99 (±0.09) | 10.2 |
| Asian/PI | 2.31 (±0.04) | 3.65 (±0.09) | 3.93 (±0.10) | 7.7 |
| Hispanic | 2.36 (±0.04) | 3.67 (±0.06) | 4.03 (±0.06) | 9.8 |
| Non-Hispanic White | 2.15 (±0.02) | 3.46 (±0.03) | 3.74 (±0.03) | 8.1 |

TABLE ENTRIES ARE DOLLARS PER PACK AND 95% CONFIDENCE LIMITS.
 SOURCE CTS 1996, 1999, 2002

Average Monthly Expenditures on Cigarettes by California Smokers

Because consumption is a major determinant of the total amount smokers spend on cigarettes, **Table 13.32** shows total monthly expenditures for racial/ethnic subgroups.

| Table 13.32 Average Monthly Expenditures on Cigarettes by California Smokers by Race/Ethnicity (2002\$) | | | | |
|---|---------------|---------------|---------------|-------------------------------|
| | 1996 | 1999 | 2002 | Factor Change 1999-2002 |
| | \$ | \$ | \$ | % |
| Overall | 43.77 (∓0.68) | 66.26 (∓1.43) | 65.66 (∓1.59) | -0.9 |
| Race/Ethnicity | | | | |
| African American | 38.74 (∓2.17) | 55.16 (∓4.76) | 63.09 (∓4.95) | 14.4 |
| Asian/PI | 39.15 (∓2.91) | 57.17 (∓4.79) | 52.96 (∓5.61) | -7.4 |
| Hispanic | 26.87 (∓1.58) | 40.70 (∓2.67) | 42.78 (∓3.31) | 5.1 |
| Non-Hispanic White | 50.57 (∓0.81) | 78.02 (∓1.76) | 77.23 (∓2.00) | -1.0 |

TABLE ENTRIES ARE DOLLARS PER PACK AND 95% CONFIDENCE LIMITS.
SOURCE CTS 1996, 1999, 2002

Non-Hispanic Whites spent more per month on cigarettes than minorities, mainly because of higher consumption levels. Because of the unprecedented cigarette price increase in 1999, all groups showed significant increases in the amount spent per month on cigarettes between 1996 and 1999. However, only one group, African Americans, showed even a marginally significant increase in monthly cigarette expenditures between 1999 and 2002.

Percentage of Smokers Worried About Money Spent on Cigarettes

The considerable monthly outlay for cigarettes leads many smokers to worry about how much they spend on cigarettes. With the major price increase between 1996 and 1999, there was a sharp increase in the percentage of smokers worried about the price of cigarettes (**Table 13.33**).

Although not statistically significant, African Americans appear to be more worried about how much they spend on cigarettes in 2002 than in 1999

| Table 13.33 Percentages of Smokers Worried About Money Spent on Cigarettes by Race/Ethnicity | | | | |
|--|-------------|-------------|-------------|-------------------------------|
| | 1996 | 1999 | 2002 | Factor Change 1999-2002 |
| | % | % | % | % |
| Overall | 35.1 (∓1.3) | 52.5 (∓1.9) | 51.7 (∓1.6) | -1.5 |
| Race/Ethnicity | | | | |
| African American | 34.5 (∓4.4) | 46.9 (∓6.3) | 55.2 (∓6.2) | 17.7 |
| Asian/PI | 38.4 (∓8.1) | 52.7 (∓7.3) | 51.7 (∓8.3) | -1.9 |
| Hispanic | 36.9 (∓2.7) | 52.3 (∓4.5) | 48.1 (∓3.8) | -8.0 |
| Non-Hispanic White | 33.8 (∓1.6) | 53.2 (∓2.1) | 52.6 (∓1.8) | -1.1 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE CTS 1996, 1999, 2002

Support for a Cigarette Excise-Tax Increase of at Least \$0.50/pack

Table 13.34 shows the percentages of different racial/ethnic groups favoring a further increase in the cigarette excise tax by at least \$0.50/pack. In 2002, support was significantly higher among Asians/PIs than African Americans or Non-Hispanic Whites. Also, Hispanics showed significantly higher support than African Americans and Non-Hispanic Whites.

| Table 13.34 Support for a Cigarette Excise-Tax Increase of at Least \$0.50/pack by Race/Ethnicity. | | | | |
|---|-------------|-------------|-------------|-------------------------|
| | 1996 | 1999 | 2002 | Factor Change 1999-2002 |
| | % | % | % | % |
| Overall | 57.1 (±1.2) | 58.2 (±1.3) | 60.7 (±1.1) | 4.3 |
| Race/Ethnicity | | | | |
| African American | 51.3 (±4.6) | 49.7 (±4.5) | 54.4 (±2.6) | 9.5 |
| Asian/PI | 59.4 (±4.4) | 61.1 (±5.1) | 65.5 (±4.2) | 7.2 |
| Hispanic | 58.6 (±2.8) | 65.9 (±2.3) | 63.5 (±1.8) | -3.6 |
| Non-Hispanic White | 57.3 (±1.3) | 55.3 (±1.3) | 59.4 (±1.4) | 7.4 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE CTS 1996, 1999, 2002

7. Media Influences on Smoking (Chapter 10)

Adolescents' Exposure to Anti-Tobacco Messages from Billboards, Radio, and TV

Table 13.35 shows percentages of adolescents, by race/ethnicity, who reported seeing at least a few anti-tobacco messages on billboards in the last month. In 2002, significantly fewer Non-Hispanic Whites heard anti-tobacco radio messages in the last month compared to other ethnic groups. There were no significant racial/ethnic differences comparing combined exposure to anti-tobacco messages on billboards, radio, or TV.

| Table 13.35 Adolescents' Exposure to Anti-Tobacco Messages from Billboards, Radio, and TV by Race/Ethnicity | | | | | | | | | | | | |
|--|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------------------------------|-------------|-------------|
| | Billboards (%) | | | Radio (%) | | | TV (%) | | | Billboards, Radio, or TV (%) | | |
| | 1996 | 1999 | 2002 | 1996 | 1999 | 2002 | 1996 | 1999 | 2002 | 1996 | 1999 | 2002 |
| Overall | 58.0 (±1.5) | 73.7 (±1.4) | 69.3 (±1.2) | 44.2 (±1.3) | 56.1 (±1.5) | 52.5 (±2.7) | 75.6 (±1.3) | 88.5 (±1.0) | 88.0 (±0.9) | 90.8 (±1.0) | 96.7 (±0.5) | 96.0 (±0.5) |
| Race/Ethnicity | | | | | | | | | | | | |
| African American | 60.4 (±4.9) | 76.0 (±4.9) | 72.5 (±4.8) | 52.0 (±4.8) | 53.0 (±6.4) | 58.9 (±2.4) | 69.5 (±4.8) | 84.9 (±4.2) | 91.9 (±4.2) | 92.0 (±3.8) | 95.3 (±2.6) | 97.5 (±1.4) |
| Asian/PI | 57.5 (±5.0) | 75.8 (±4.2) | 64.4 (±5.2) | 46.0 (±4.5) | 59.3 (±5.8) | 54.5 (±4.5) | 79.5 (±3.4) | 91.4 (±3.5) | 88.0 (±4.7) | 92.4 (±2.5) | 97.5 (±2.5) | 95.6 (±1.8) |
| Hispanic | 61.2 (±2.9) | 72.3 (±2.3) | 69.5 (±2.0) | 44.2 (±2.8) | 56.1 (±3.0) | 53.6 (±2.4) | 75.8 (±2.2) | 87.7 (±1.6) | 88.6 (±1.8) | 91.3 (±1.7) | 96.8 (±0.8) | 96.1 (±0.9) |
| Non-Hisp. White | 55.7 (±1.5) | 74.2 (±1.7) | 70.0 (±1.9) | 42.6 (±1.5) | 55.9 (±2.1) | 49.1 (±2.2) | 75.6 (±1.7) | 89.0 (±1.6) | 86.8 (±1.4) | 89.9 (±1.3) | 96.5 (±1.4) | 95.8 (±0.8) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1996, 1999, 2002

Favorite Cigarette Advertisement

Table 13.36 shows that overall, the popularity of the Camel brand has significantly decreased among adolescents of all racial/ethnic groups from 1993 to 2002. Further, the percentage of adolescents who do not have a favorite cigarette advertisement has significantly increased from 1996 to 2002 across all racial/ethnic groups.

In general, significantly fewer African American adolescents named Marlboro as their favorite ad in each year, compared to adolescents of other racial/ethnic groups, while more Hispanic adolescents named Marlboro in each year. Although the percentage of adolescents naming Camel as their favorite ad decreased significantly from 1996 to 2002 across all racial/ethnic groups, higher percentages of Non-Hispanic Whites reported Camel as their favorite ad in 2002, as in previous years, compared to other racial/ethnic groups.

Table 13.36
Adolescents' Named Brand of Favorite Cigarette Advertisement by Race/Ethnicity

| | Marlboro (%) | | | | Camel (%) | | | | None (%) | | | |
|-----------------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | 1993 | 1996 | 1999 | 2002 | 1993 | 1996 | 1999 | 2002 | 1993 | 1996 | 1999 | 2002 |
| Overall | 19.0 (±1.6) | 20.6 (±1.3) | 24.2 (±1.5) | 18.6(±1.5) | 36.4 (±1.8) | 36.0 (±1.1) | 23.6 (±1.2) | 15.4 (±1.5) | 34.6 (±2.0) | 35.5 (±1.2) | 43.7 (±1.4) | 59.5 (±1.2) |
| Race/Ethnicity | | | | | | | | | | | | |
| African American | 6.5 (±2.8) | 6.3 (±2.5) | 13.7 (±3.7) | 11.6 (±3.9) | 32.9 (±7.2) | 30.8 (±3.6) | 24.8 (±5.4) | 15.2 (±3.9) | 39.2 (±8.3) | 40.1 (±4.1) | 41.7 (±4.6) | 59.1 (±5.8) |
| Asian/PI | 16.3 (±4.1) | 23.5 (±3.6) | 22.8 (±5.5) | 14.4 (±6.0) | 29.1 (±5.6) | 29.7 (±4.8) | 23.2 (±4.4) | 13.2 (±6.0) | 44.9(±6.3) | 38.6 (±4.6) | 44.3 (±5.2) | 66.0 (±4.3) |
| Hispanic | 23.6 (±3.3) | 24.6 (±2.5) | 27.4 (±2.3) | 21.0 (±2.4) | 34.5 (±3.9) | 32.2 (±2.6) | 19.1 (±1.8) | 13.1 (±2.4) | 34.1 (±3.9) | 37.7 (±2.6) | 47.5 (±2.3) | 60.6 (±2.3) |
| Non-Hisp White | 18.6 (±1.9) | 19.5 (±1.5) | 23.8 (±1.8) | 19.0 (±1.9) | 39.6 (±2.3) | 40.4 (±1.6) | 27.8 (±1.6) | 17.7 (±1.9) | 32.1 (±2.3) | 32.9 (±1.8) | 40.5 (±2.1) | 57.3 (±2.2) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1993, 1996, 1999, 2002

Adolescents Who Obtained Tobacco Brand Promotional Items in the Last Year

Table 13.37 shows that across racial/ethnic groups, the percentage of adolescents who reported they had either exchanged coupons for, received as a gift, or purchased a tobacco brand item in the last year decreased between 1996 and 1999, with the decreases significant for Hispanics and Non-Hispanics. This percentage continued to decrease across all racial/ethnic groups between 1999 and 2002, although significantly only among Non-Hispanic Whites.

| Table 13.37 Adolescents Who Obtained Tobacco Brand Promotional Items (Exchanged Coupons, Received Free, or Purchased) in the Last Year by Race/Ethnicity | | | |
|---|-------------|------------|------------|
| | 1996 % | 1999 % | 2002 % |
| Overall | 13.7 (±1.1) | 8.9 (±0.8) | 6.8 (±0.8) |
| Race/Ethnicity | | | |
| African American | 11.9 (±3.8) | 7.9 (±3.0) | 7.5 (±3.3) |
| Asian/PI | 14.1 (±3.7) | 8.3 (±3.1) | 5.9 (±2.0) |
| Hispanic | 12.5 (±2.0) | 8.6 (±1.5) | 7.4 (±0.9) |
| Non-Hispanic White | 14.1 (±1.1) | 9.3 (±1.1) | 5.8 (±1.4) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1996, 1999, 2002

Adolescent Willingness to Use a Tobacco Brand Promotional Item

In 1996, there were no significant differences across race/ethnicity in the percentage of adolescents willing to use a tobacco brand promotional item (**Table 13.38**). By 1999, significantly more Hispanic teens than African Americans or Non-Hispanic Whites were willing to use a tobacco brand promotional item. In 2002, significantly more Hispanic teens than Non-Hispanic Whites and Asian/PIs were willing to use a tobacco promotional item.

| Table 13.38 Adolescent Willingness to Use a Tobacco Brand Promotional Item by Race/Ethnicity | | | |
|--|-------------|-------------|-------------|
| | 1996 % | 1999 % | 2002 % |
| Overall | 23.4 (±1.1) | 14.7 (±1.1) | 11.5 (±1.0) |
| Race/Ethnicity | | | |
| African American | 18.1 (±3.8) | 11.4 (±3.1) | 10.6 (±3.6) |
| Asian/PI | 22.7 (±5.0) | 14.2 (±3.6) | 8.6 (±2.3) |
| Hispanic | 25.0 (±2.8) | 17.3 (±2.3) | 13.4 (±1.3) |
| Non-Hispanic White | 23.2 (±1.6) | 12.9 (±1.3) | 9.8 (±1.5) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1996, 1999, 2002

Exposure to Cigarette Logos on Televised Sporting Events

Table 13.39 shows that overall, the percentage of adolescents who reported seeing a tobacco logo on a televised sports event very often in the last year decreased by a factor of 36.0%, from 18.9% in 1996 to 12.1% in 1999. In 1996, a significantly higher percentage of Non-Hispanic Whites reported seeing a tobacco logo on a televised sports event very often in the past year, compared to respondents of other ethnic groups. By 1999, there were no significant differences in exposure between the different ethnic groups. In 2002, Asian/PIs were less likely than Hispanics or Non-Hispanic Whites to report seeing a tobacco logo on a televised sports event.

| Table 13.39 Adolescents Reporting Seeing a Tobacco Logo on a Televised Sports Event Very Often in the Last Year by Race/Ethnicity | | | |
|--|-------------|-------------|-------------|
| | 1996 % | 1999 % | 2002 % |
| Overall | 18.9 (±1.1) | 12.1 (±1.0) | 12.9 (±1.0) |
| Race/Ethnicity | | | |
| African American | 16.6 (±3.6) | 13.4 (±4.3) | 11.9 (±3.7) |
| Asian/PI | 16.0 (±3.1) | 11.1 (±3.6) | 8.3 (±3.2) |
| Hispanic | 16.3 (±1.7) | 10.4 (±1.4) | 13.5 (±1.5) |
| Non-Hispanic White | 21.8 (±1.6) | 13.8 (±1.6) | 14.3 (±1.5) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1996, 1999, 2002

8. Limiting Youth Access to Cigarettes (Chapter 11)

Adolescents Who Think Cigarettes Are Easy to Get

Table 13.40 shows the percentage of adolescent never smokers who perceived that cigarettes were easy to obtain across racial/ethnic groups. Although there was a significant decrease across all racial/ethnic groups from 1996 to 2002, the decline between 1999 and 2002 was not significant for any racial/ethnic group, and there were no significant differences among groups in 2002.

| Table 13.40 Adolescent Never Smokers Who Thought It Would Be Easy to Get Cigarettes If They Wanted Them by Race/Ethnicity | | | | | | |
|--|-------------|--------------|-------------|-------------|-------------|-------------|
| | 1990 % | 1992 % | 1993 % | 1996 % | 1999 % | 2002 % |
| Overall | 57.9 (±2.2) | 55.9 (±2.8) | 56.9 (±1.9) | 57.2 (±1.4) | 48.0 (±1.5) | 45.9 (±1.9) |
| Race/Ethnicity | | | | | | |
| African American | 56.6 (±9.9) | 65.6 (±14.2) | 62.1 (±7.7) | 59.3 (±5.6) | 48.9 (±4.7) | 45.5 (±6.5) |
| Asian/PI | 51.5 (±9.2) | 51.6 (±9.6) | 48.0 (±6.9) | 53.0 (±5.3) | 44.4 (±6.5) | 41.2 (±5.0) |
| Hispanic | 57.2 (±3.9) | 48.0 (±5.2) | 53.0 (±4.5) | 50.0 (±2.5) | 43.7 (±3.2) | 42.5 (±3.0) |
| Non-Hispanic White | 59.7 (±2.0) | 61.1 (±4.4) | 60.5 (±2.1) | 63.8 (±2.1) | 53.0 (±2.5) | 51.7 (±2.6) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1990, 1993, 1996, 1999, 2002

Table 13.41 shows the racial/ethnic breakout of adolescents (all smoking status groups) who thought it would be easy to buy a few cigarettes. All racial/ethnic groups except the Asian/PI group showed significant declines between 1999 and 2002, and showed similar levels in 2002.

| Table 13.41 | | | | | |
|---|-------------|-------------|-------------|------------------------|------------------|
| Adolescents Who Think It Is Easy to Buy a Few Cigarettes by Race/Ethnicity | | | | | |
| | 1996 | 1999 | 2002 | Factor Decrease | |
| | % | % | % | 1996-1999 | 1999-2002 |
| Overall | 69.1 (±1.2) | 47.4 (±1.3) | 36.1 (±1.3) | -31.4 | -24.0 |
| Race/Ethnicity | | | | | |
| African-American | 69.1 (±4.2) | 51.3 (±5.7) | 35.4 (±5.6) | -25.7 | -31.1 |
| Asian/PI | 64.0 (±3.0) | 42.8 (±4.3) | 35.0 (±3.9) | -33.1 | -18.2 |
| Hispanic | 64.6 (±2.6) | 46.1 (±2.4) | 34.9 (±2.3) | -28.7 | -24.3 |
| Non-Hispanic White | 73.5 (±1.6) | 49.3 (±2.1) | 37.6 (±1.9) | -33.0 | -23.6 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1996, 1999, 2002

Table 13.42 presents the results (all smoking status groups) for racial/ethnic groups who thought it would be easy to buy a pack of cigarettes. There were significant declines in Asian/PIs and Non-Hispanic Whites between 1999 and 2002.

| Table 13.42 | | | | | |
|---|-------------|-------------|-------------|------------------------|------------------|
| Adolescents Who Think It Is Easy to Buy a Pack by Race/Ethnicity | | | | | |
| | 1996 | 1999 | 2002 | Factor Decrease | |
| | % | % | % | 1996-1999 | 1999-2002 |
| Overall | 51.5 (±1.4) | 26.7 (±1.3) | 21.7 (±1.0) | -48.2 | -18.8 |
| Race/Ethnicity | | | | | |
| African American | 55.3 (±4.9) | 28.2 (±4.8) | 22.7 (±4.7) | -49.0 | -19.5 |
| Asian/PI | 43.1 (±4.6) | 26.8 (±4.7) | 18.2 (±3.4) | -37.9 | -32.1 |
| Hispanic | 46.2 (±2.8) | 24.9 (±2.1) | 21.2 (±2.0) | -46.0 | -15.1 |
| Non-Hispanic White | 56.5 (±1.9) | 28.1 (±1.8) | 23.3 (±1.6) | -50.3 | -16.9 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1996, 1999, 2002

Adolescent Never Smokers Offered a Cigarette

Table 13.43 shows the percentages of adolescent never smokers who reported being offered a cigarette within racial/ethnic subgroups. The decline from 1999 to 2002 was significant for Non-Hispanic Whites. In 2002, Asian/PIs were significantly less likely to report being offered a cigarette than Hispanics and African Americans.

| Table 13.43 Never Smokers Within Racial/Ethnic Groups Who Answered "Yes" to "Have you ever been offered a cigarette?" by Race/Ethnicity | | | |
|--|-------------|-------------|-------------|
| | 1996 % | 1999 % | 2002 % |
| Overall | 37.4 (±1.8) | 37.0 (±1.7) | 31.5 (±1.4) |
| Race/Ethnicity | | | |
| African American | 41.1 (±6.3) | 41.1 (±5.5) | 34.0 (±5.4) |
| Asian/PI | 27.5 (±4.6) | 28.4 (±5.1) | 22.4 (±5.1) |
| Hispanic | 42.1 (±3.3) | 41.7 (±2.8) | 36.4 (±3.3) |
| Non-Hispanic White | 36.2 (±2.2) | 34.5 (±2.6) | 29.1 (±2.1) |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95%
CONFIDENCE LIMITS.

SOURCE: CTS 1996, 1999, 2000

9. Smoke-free Schools (Chapter 12)

Obeying the School Rule Not to Smoke on Campus

Table 13.44 shows the perception that most or all students obey the rule for racial/ethnic subgroups.

| Table 13.44 How Many Students Who Smoke Obey the Rule Not to Smoke on School Property by Race/Ethnicity | | | | | | |
|--|----------------------------|-------------|-------------|-------------|-------------|--|
| | Responding "Most" or "All" | | | | | Factor Increase 1999- 2002 % |
| | 1990 % | 1993 % | 1996 % | 1999 % | 2002 % | |
| All Students | 46.3 (±2.0) | 43.7 (±1.6) | 40.7 (±1.4) | 66.7 (±1.5) | 71.5 (±1.4) | 7.2 |
| Race/Ethnicity | | | | | | |
| African American | 49.2 (±8.8) | 42.5 (±7.7) | 38.3 (±5.0) | 65.2 (±5.4) | 65.7 (±5.0) | 1.0 |
| Asian/PI | 42.1 (±6.6) | 38.0 (±5.9) | 34.5 (±4.3) | 61.4 (±4.8) | 74.2 (±4.4) | 20.8 |
| Hispanic | 42.8 (±3.5) | 38.5 (±3.8) | 39.6 (±2.9) | 63.0 (±2.5) | 66.8 (±2.4) | 6.0 |
| Non-Hispanic White | 48.9 (±2.6) | 47.9 (±2.3) | 43.3 (±2.0) | 72.5 (±2.0) | 76.5 (±2.1) | 5.5 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1990, 1993, 1996, 1999, 2002

While a significantly higher percentage of Non-Hispanic White than minority students reported that most or all student smokers obeyed the school smoking rule in 1999, all ethnic groups showed impressive increases in perceived compliance with the school smoking ban since 1996. Asian/PI students reporting compliance also increased significantly (by a factor of over 20%) from 1999 to 2002, to a level comparable to that of Non-Hispanic Whites.

Students Witnessing Smoking in School

Table 13.45 shows that the percentage of students who had seen anyone smoking at school varied by racial/ethnic group, with generally lower levels among Hispanics, although differences were not always significant. In 2002, the difference between the African American and Asian/PI groups was significant.

| Table 13.45 Students Who Have Seen Anyone Smoking at School in the Past Two Weeks by Race/Ethnicity | | | | |
|--|-------------|-------------|-------------|---------------------------------|
| | 1996 | 1999 | 2002 | Factor Decrease 1999-2002 |
| | % | % | % | % |
| All Students | 36.0 (±1.5) | 26.3 (±1.7) | 20.8 (±1.2) | -20.9 |
| Race/Ethnicity | | | | |
| African American | 35.1 (±5.2) | 27.1 (±6.2) | 26.9 (±5.7) | -0.70 |
| Asian/PI | 41.7 (±4.1) | 31.0 (±5.7) | 17.9 (±3.3) | -42.3 |
| Hispanic | 32.2 (±2.9) | 24.4 (±2.4) | 20.3 (±2.2) | -16.8 |
| Non-Hispanic White | 37.0 (±1.8) | 26.7 (±2.0) | 20.6 (±1.9) | -22.8 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.

SOURCE: CTS 1996, 1999, 2002

The decrease in witnessing someone smoking from 1999 to 2002 did not change significantly for African American and Hispanic students. However the decrease was considerable for Non-Hispanic White students (a factor of 22.8%) and impressive among Asian/PI students (a factor of 42.3%).

Perceptions of Teachers' Smoking

Table 13.46 shows students' perceptions of teachers smoking on school grounds from 1996 to 2002. African American students showed a marginally significant decrease in perceptions of teachers smoking on school grounds from 1999 to 2002. While this group was particularly likely to report seeing teachers smoke in 1996, by 2002, it was not different from other racial/ethnic groups.

| Table 13.46 Students Who Perceive That Teachers Smoke on School Grounds by Race/Ethnicity | | | | |
|--|-------------|-------------|-------------|---------------------------------|
| | 1996 | 1999 | 2002 | Factor Decrease 1999-2002 |
| | % | % | % | % |
| All Students | 19.4 (±1.4) | 15.7 (±1.8) | 13.0 (±1.3) | -17.2 |
| Race/Ethnicity | | | | |
| African American | 26.5 (±6.9) | 24.1 (±6.0) | 14.5 (±5.3) | -39.8 |
| Asian/PI | 17.3 (±4.6) | 17.4 (±5.2) | 11.8 (±4.1) | -32.2 |
| Hispanic | 19.4 (±3.1) | 15.1 (±2.4) | 14.6 (±2.7) | -3.3 |
| Non-Hispanic White | 18.7 (±1.8) | 14.1 (±2.2) | 12.4 (±1.9) | -12.1 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1990, 1993, 1996, 1999, 2002

Trends in Classes on the Health Risks of Smoking at Schools

While all students should now be reached, these classes may not make a sufficient impact to be remembered. It is of interest, therefore, to examine racial/ethnic differences in the recall of having a class on the health risks of smoking in recent years. **Table 13.47** shows recall of a smoking prevention class across racial/ethnic groups in 1996, 1999, and 2002.

While African American and Hispanic students in 1996 were less likely to recall having a class that covered this topic, it is encouraging that this disparity in recall for minorities was closing by 2002.

| Table 13.47 Students Who Recall Having a Class on the Health Risks of Smoking by Race/Ethnicity | | | | |
|--|-------------|-------------|-------------|---------------------------------|
| | 1996 | 1999 | 2002 | Factor Increase 1999-2002 |
| | % | % | % | % |
| All Students | 76.1 (±1.3) | 77.8 (±1.4) | 80.1 (±1.0) | 3.0 |
| Race/Ethnicity | | | | |
| African American | 70.4 (±5.2) | 74.0 (±5.6) | 74.3 (±6.2) | 0.4 |
| Asian/PI | 78.6 (±3.7) | 77.9 (±4.5) | 80.7 (±4.2) | 3.6 |
| Hispanic | 69.9 (±3.0) | 74.0 (±2.7) | 77.0 (±2.0) | 4.1 |
| Non-Hispanic White | 80.3 (±1.5) | 82.2 (±1.5) | 83.9 (±1.5) | 2.1 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1996, 1999, 2002

Perception of Health Class Effectiveness in Deterring Smoking

As seen in **Table 13.48**, although perceptions of class effectiveness increased between 1996 and 1999, and leveled off by 2002, there were no significant differences across racial/ethnic groups.

| Table 13.48 Students Who Perceived That the Health Class on the Effects of Smoking Was Effective by Race/Ethnicity | | | | |
|---|-------------|-------------|-------------|----------------------------|
| | 1996 | 1999 | 2002 | Factor Change 1999-2002 |
| | % | % | % | % |
| All Students | 43.1 (±1.6) | 52.3 (±1.8) | 54.3 (±1.9) | 3.8 |
| Race/Ethnicity | | | | |
| African American | 41.4 (±5.8) | 52.0 (±5.8) | 53.2 (±6.9) | 2.3 |
| Asian/PI | 46.3 (±5.7) | 56.6 (±6.3) | 55.9 (±4.6) | -1.2 |
| Hispanic | 42.5 (±3.3) | 51.5 (±2.6) | 55.7 (±3.4) | 8.2 |
| Non-Hispanic White | 43.4 (±2.4) | 51.5 (±2.6) | 53.6 (±2.3) | 4.1 |

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1996, 1999, 2002

10. Summary of Racial/Ethnic Differences

Trends in Tobacco Use in California

Adults (18+ years)

African American adults showed the highest smoking prevalence rates, followed by Non-Hispanic Whites, Hispanics, and Asian/PIs. By 2002, smoking prevalence had decreased by a factor of approximately 20% across racial/ethnic groups since 1990, with Hispanics decreasing by a factor of 25.3%. Among adult males, smoking prevalence rates were very similar for Asian/PIs, Hispanics and Non-Hispanic Whites (about 19%), while the prevalence among African Americans was significantly higher (23.9±1.9%). In each year, among females, the Asian/PI and Hispanic groups showed significantly lower prevalence than African Americans and Non-Hispanic Whites. All groups, except the Asian/PI group, which was already at very low levels, showed a significant decline between 1990 and 2002.

Young Adults (18-29 years)

While African American adults (18+ years) showed higher prevalence rates than other racial/ethnic groups, a different pattern was observed for young adults. In 1990, African American and Non-Hispanic White young adults had similar smoking prevalence rates. However, between 1990 and 1993, smoking prevalence for young African Americans declined significantly by a factor of 41.6%, and was then significantly lower than smoking prevalence for Non-Hispanic Whites and not significantly different from other minority groups through 2002. If these young African Americans are headed to high levels of

smoking as older adults, it would be expected that they would be more represented than other racial/ethnic groups among groups at risk for future smoking. However, this was not the case. Therefore, this generation of younger African Americans might escape the high levels of smoking seen among older generations. This abrupt change among African Americans may be due to new groups of adolescents maturing to young adulthood as never smokers, less experimentation during young adulthood, or failure of experimenters to go on to become established smokers.

Adolescents (12-17 years)

The percentage of adolescents ever experimenting (even a puff) with cigarette smoking has decreased across all racial/ethnic subgroups. The decrease in prevalence was more pronounced between 1996 and 1999, and continued to 2002. Non-Hispanic White and Hispanic adolescents generally exhibited the highest ever smoking rates across all racial/ethnic groups in all survey years. Consistent across survey years was a higher current smoking prevalence rate among Hispanic and Non-Hispanic White adolescents compared to African American and Asian/PI adolescents. Current smoking prevalence has declined considerably in all racial/ethnic groups since 1996, but it is worth noting that Non-Hispanic Whites showed the largest decline by 2002, by a factor of 58.3%. Established smoking appears to have begun its decline in 1999, and continued to decline in 2002 in all ethnic groups, although only the decreases in Non-Hispanic Whites and Hispanics were significant. Unless something happens to spur adolescent smoking in the future, the low rates of established smoking among 15- to 17-year-olds across all racial/ethnic groups should signify a decline in adult smoking prevalence in the future.

Protection of Nonsmokers from Secondhand Smoke

In 1990 and 1992 there were significant racial/ethnic disparities in report of a smoke-free workplace, but these have largely disappeared in recent years. Nonetheless, Hispanics remain slightly less likely to report a smoke-free workplace in 2002, with the difference significant when compared to Non-Hispanic Whites. From 1990 to 2002, all racial/ethnic groups have shown major declines in exposure to someone smoking in their work area in the past two weeks. In all years except 1999, Hispanics were significantly more likely to report exposure compared to Non-Hispanic Whites.

Smoking Cessation

Quit Attempts

In all survey years, except for 1992, racial/ethnic minorities had significantly higher quit attempt rates than Non-Hispanic Whites. Hispanics and Non-Hispanic White smokers showed significant increases in 1-day attempts between 1996 and 2002. Hispanic smokers were more likely than Non-Hispanic Whites to stay off cigarettes for a week or longer in all years, but Non-Hispanic Whites showed a significant increase between 1996 and 2002.

Role of Workplace and Home Smoking Restrictions

In 2002, Asian/PI smokers were significantly more likely to have smoking bans both at work and at home, and this group showed a significant increase, by a factor of 50%,

between 1996 and 2002. African American smokers were least likely to have these dual bans. Hispanics were less protected at work and more likely to be protected at home, and did not show a significant change between 1996 and 2002. However, Non-Hispanic White smokers did show a significant increase over that period.

Use of Nicotine Replacement Therapy

In 1996 and 1999 Non-Hispanic White quitters were significantly more likely to have used NRT. Hispanics were the least likely to use NRT for their most recent quit attempt in every year, and the difference was significant between Hispanics and every other group in 2002. However, many Hispanic smokers are light smokers, exhibiting the lowest daily smoking prevalence, so they may feel less need to use NRT. Hispanic smokers were also the least likely to be advised to quit by their physicians, again perhaps because they are less likely to be moderate-to-heavy smokers, and the difference between Hispanics and Non-Hispanic White smokers has been significant since 1996.

Price Sensitivity and Taxes

Racial/ethnic minorities paid more for a pack of cigarettes than Non-Hispanic Whites across all survey years. However, Non-Hispanic Whites spent more per month than minorities, likely because they are heavier smokers. Because of the unprecedented increase in cigarette price in 1999, all groups showed significant increases in the amount spent per month on cigarettes between 1996 and 1999. However, only one group, African Americans, showed even a marginally significant increase in monthly cigarette expenditures between 1999 and 2002.

Media Influences on Smoking

In 2002, significantly fewer Non-Hispanic Whites recalled hearing anti-tobacco radio messages in the last month compared to other ethnic groups, but all groups were equally likely to recall these messages from billboards and TV. Overall, the proportion of adolescents who did not have a favorite cigarette advertisement has significantly increased from 1996 to 2002. Also, the percentage of adolescents who reported they had either exchanged coupons for, received as a gift, or purchased a tobacco promotional item in the last year decreased significantly between 1996 and 1999. This percentage continued to decrease across all racial/ethnic groups between 1999 and 2002, although the decrease was significant only among Non-Hispanic Whites. By 1999 and 2002, significantly more Hispanic teens than African Americans or Non-Hispanic Whites were willing to use a tobacco brand promotional item.

Limiting Youth Access to Cigarettes

The percentage of adolescent never smokers who perceived that cigarettes were easy to obtain decreased significantly across all racial/ethnic groups between 1996 and 2002. However, the decline between 1999 and 2002 was not significant for any racial/ethnic group. Among all smoking status groups and all racial/ethnic groups, except Asian/PIs, the percentage who thought it would be easy to buy a few cigarettes declined significantly between 1999 and 2002. Furthermore, between 1999 and 2002, the percentage who

thought it would be easy to buy a pack of cigarettes declined markedly among Asian/PIs and Non-Hispanic Whites. Between 1999 and 2002, the percentage of adolescent never smokers who reported being offered a cigarette declined significantly among Non-Hispanic Whites. In 2002, Asian/PIs were significantly less likely to report being offered a cigarette than Hispanics and African Americans.

Smoke-free Schools

All racial/ethnic groups showed impressive increases in perceived compliance with school smoking bans since 1996. A significantly higher percentage of Non-Hispanic White than minority students reported that most or all student smokers obeyed the school smoking rule in 1999. Preference for smoke-free schools increased significantly among Non-Hispanic White students from 1993 to 2002. In 2002, Hispanic students' preference for a smoke-free school was lower than that of Non-Hispanic White students. While African American and Hispanic students in 1996 were less likely to recall having a class that covered the health effects of smoking, it is encouraging that this disparity in the recall of such classes for minorities had diminished by 2002.

Glossary

Adolescents

Committed never smoker – a *never smoker* who answers “definitely not” to three questions: trying a cigarette soon, accepting a cigarette if offered by a best friend, and likelihood of smoking in the next year.

Current established smoker – has smoked a cigarette on at least one day in the past month and has smoked at least 100 cigarettes in his or her lifetime.

Current smoker – has smoked a cigarette on at least one day in the past month.

Established smoker – has smoked at least 100 cigarettes in his or her lifetime.

Experimenter – has smoked a cigarette (excludes *puffers*), but has not smoked at least 100 cigarettes in his or her lifetime.

Puffer – someone who has not smoked a cigarette, but admits to puffing on one.

Susceptible never smoker – a *never smoker* who fails to answer “definitely not” to all three questions about trying a cigarette soon, accepting a cigarette if offered by a best friend, and their likelihood of smoking in the next year.

Adults

Current smoker – has smoked at least 100 cigarettes in his or her lifetime and smokes now (old question) or now either everyday or some days (new question) at the time of the survey.

Daily smoker – a *current smoker* who has smoked on every day of the past month (old question sequence) or who now smokes everyday (new question).

Ever smoker – has smoked at least 100 cigarettes in lifetime.

Former smoker – has smoked at least 100 cigarettes in lifetime, but does not smoke now (old question) or now smokes not at all (new question).

Heavy smoker – a *current smoker* who smokes 15 or more cigarettes a day.

Light smoker – a *current smoker* who smokes fewer than 15 cigarettes a day.

Moderate smoker – a *current smoker* who smokes 15-24 cigarettes a day.

Never smoker – has smoked fewer than 100 cigarettes in his or her lifetime.

Non-daily smoker – a *current smoker* who smoked on at least 1 day but fewer than 30 days in the past month (old question sequence) or who says he or she now smokes some days (new question).

Smoker in the last year - Either a *current smoker* or a *former smoker* who smoked regularly a year before the survey.



References

- Farkas AJ. When does cigarette fading increase the likelihood of future cessation? *Ann Behav Med.* **1999**;21:71-76.
- Fiore MC, Novotny TE, Pierce JP, Giovino GA, Hatziaandreu EJ, Newcomb PA, Surawicz TS, Davis RM. Methods used to quit smoking in the United States. Do cessation programs help? *JAMA.* **1990**;263:2760-2765.
- Tobacco Education and Research Oversight Committee (TEROC). *Toward a Tobacco-free California 2003-2005. The myth of Victory; Master plan*; **2003**.
- U.S. Department of Health and Human Services (USDHHS). *Tobacco Use Among U.S. Racial/Ethnic Minority Groups--African Americans, American Indians and Alaska Natives, Asian Americans and Pacific Islanders, and Hispanics: A Report of the Surgeon General*. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; **1998**. Report No: 017-001-00527-4.